

458/497

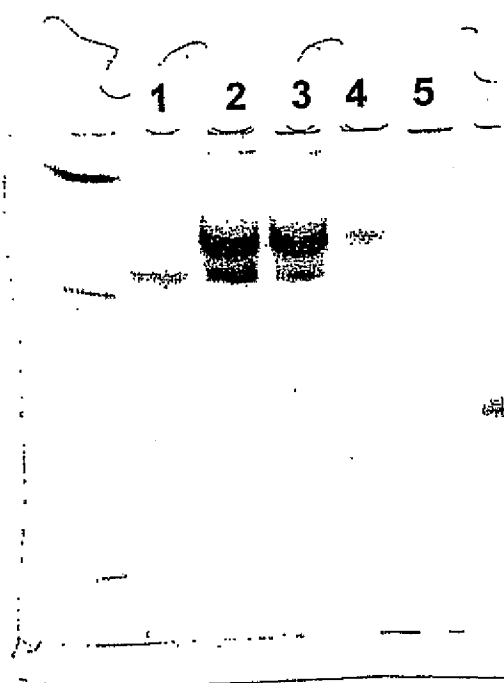


FIG. 157

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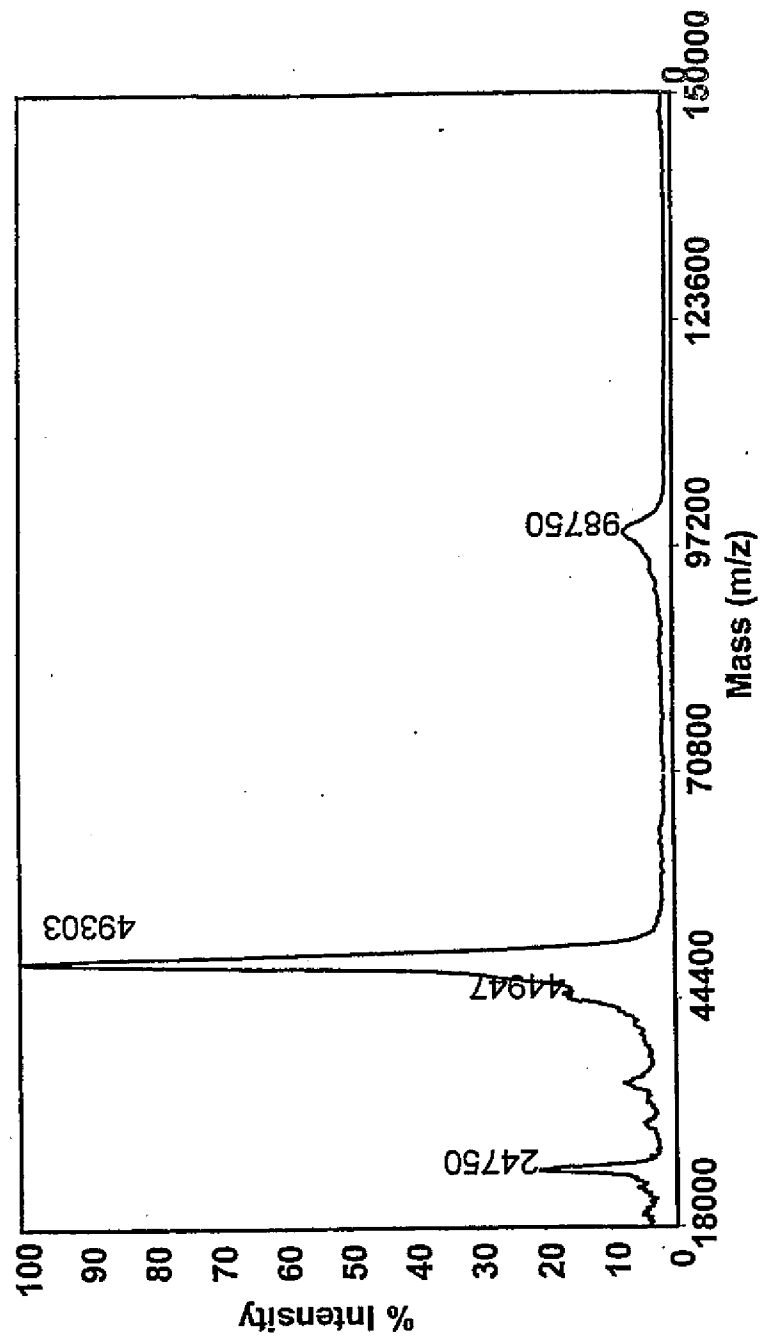


FIG. 158

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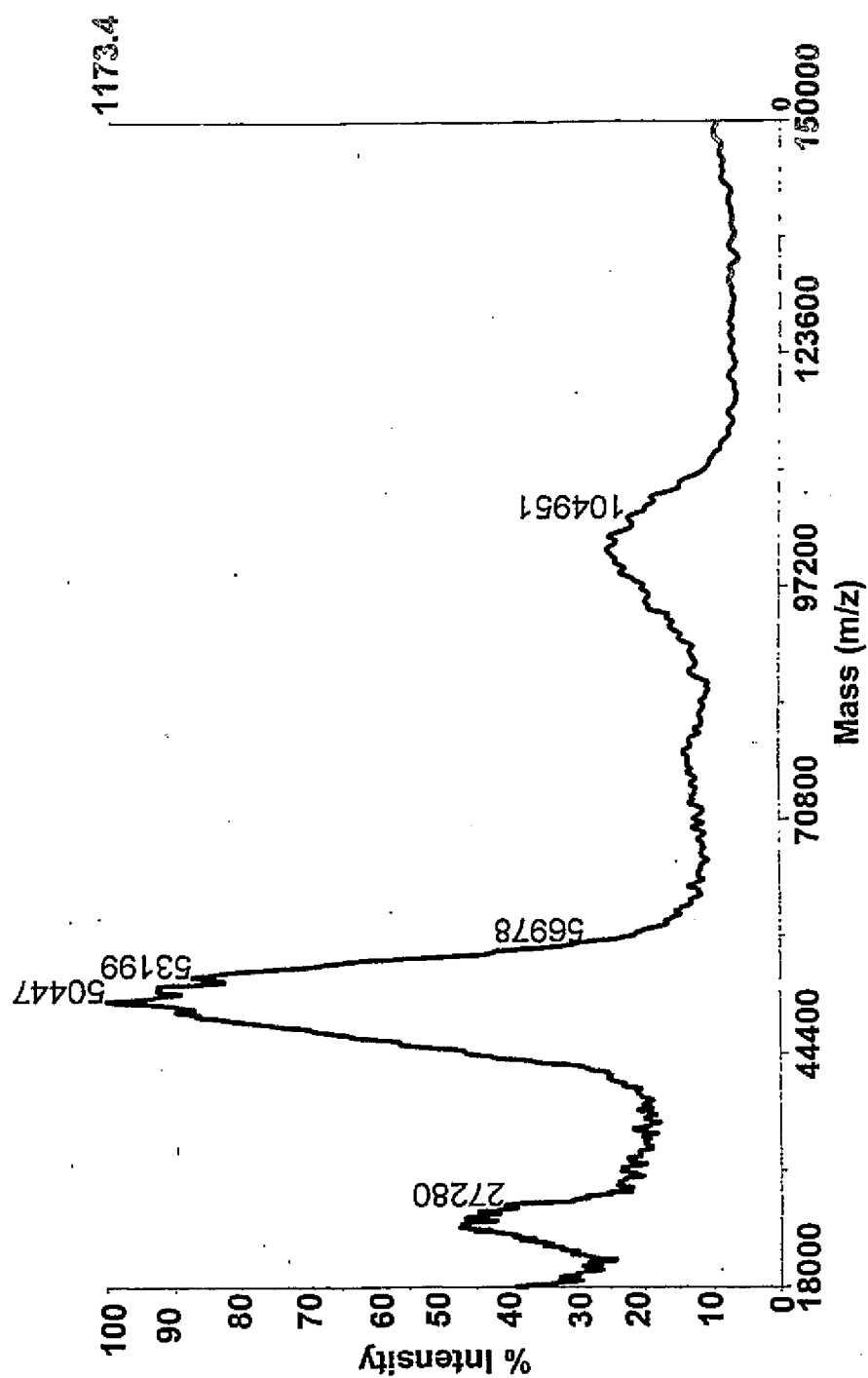


FIG. 159

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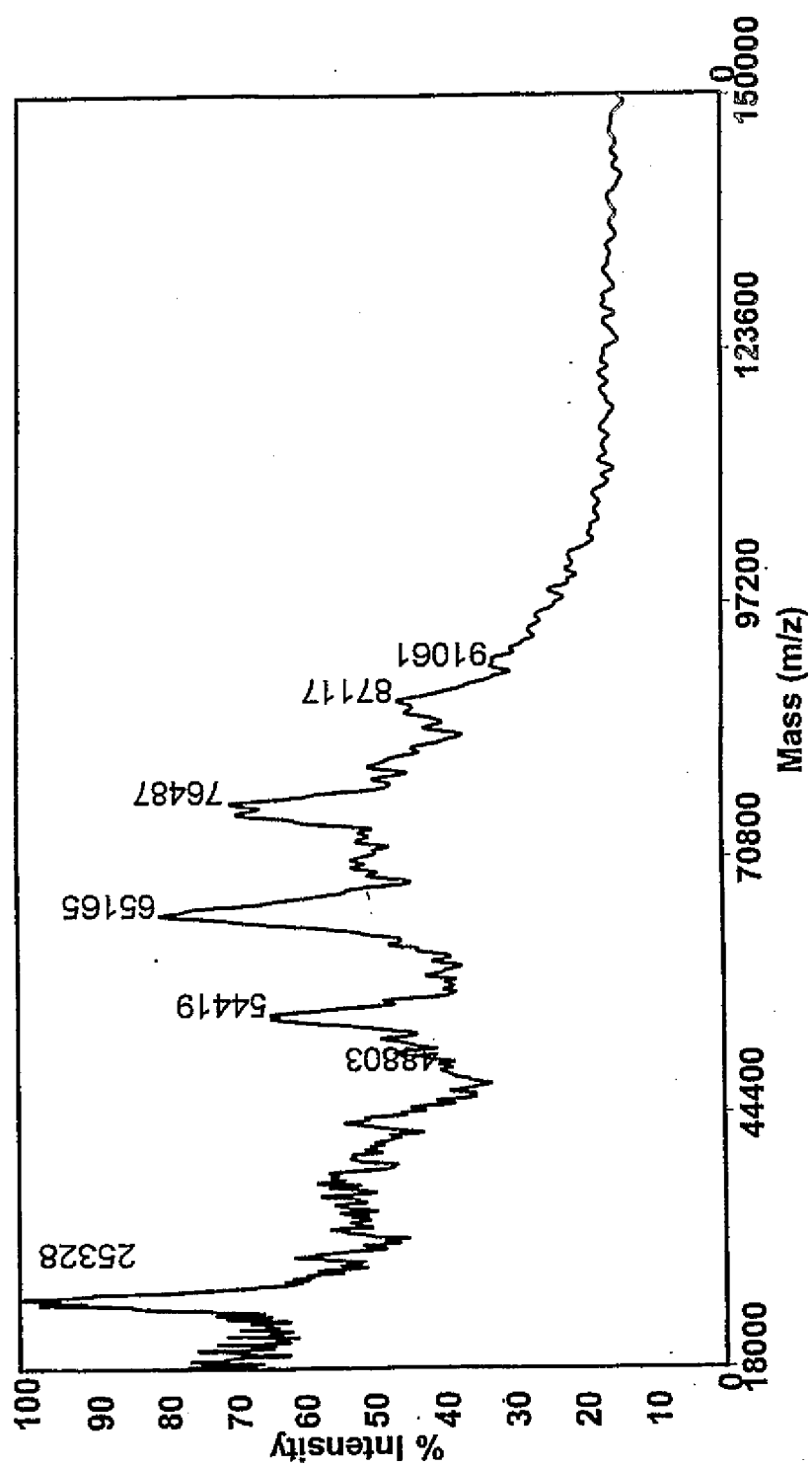


FIG. 160

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FIG. 161

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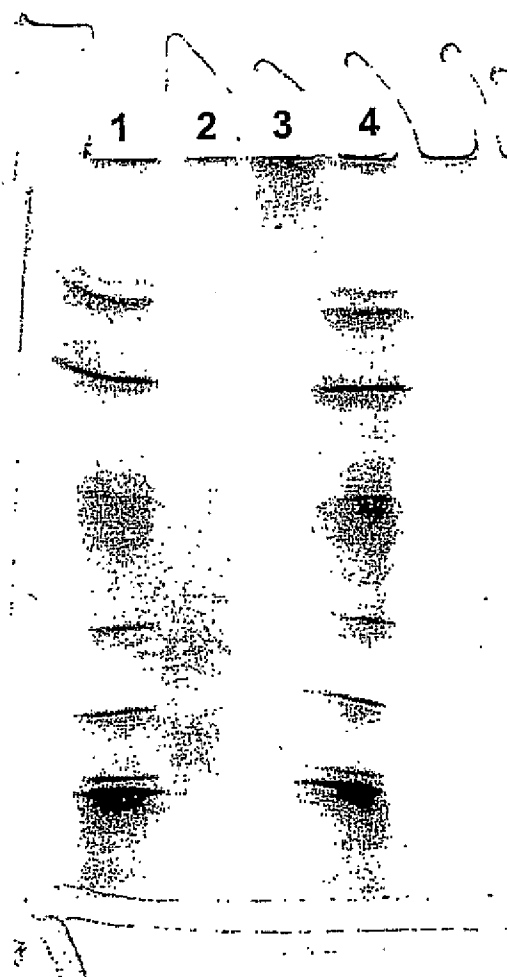


FIG. 162

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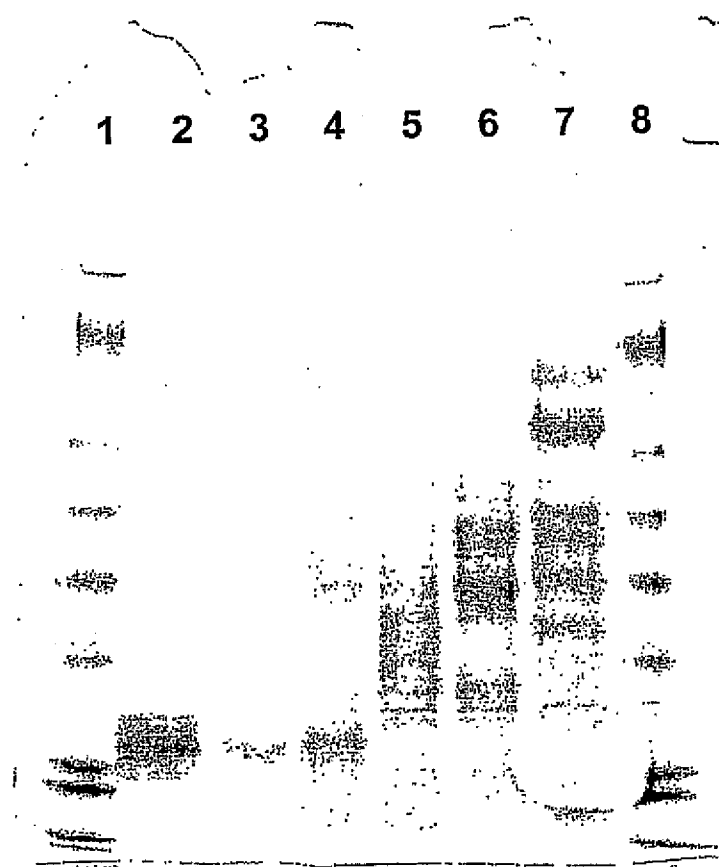


FIG. 163

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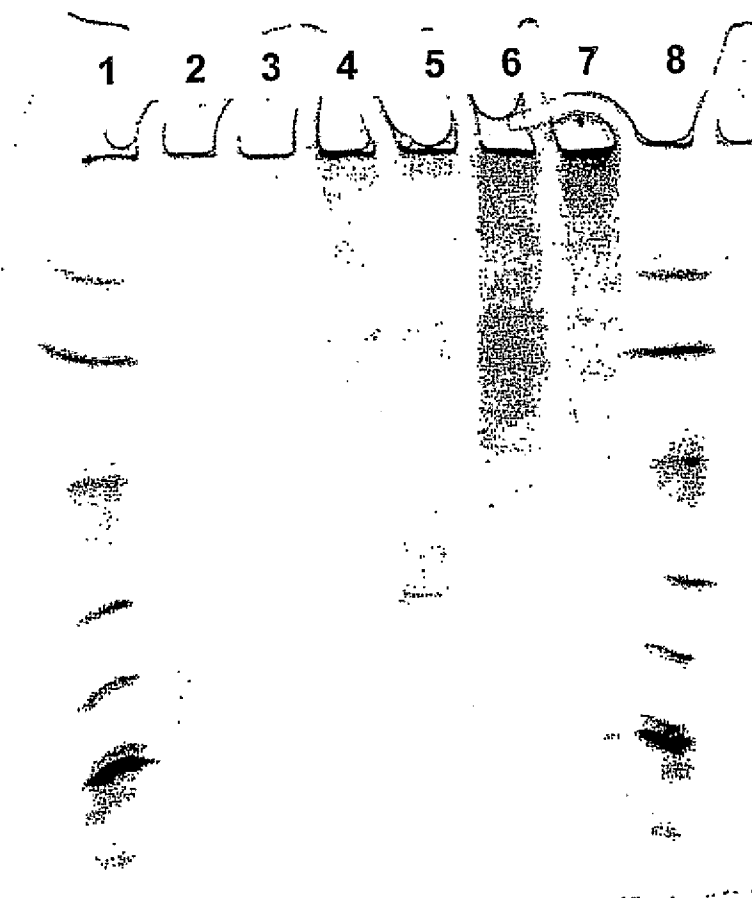


FIG. 164

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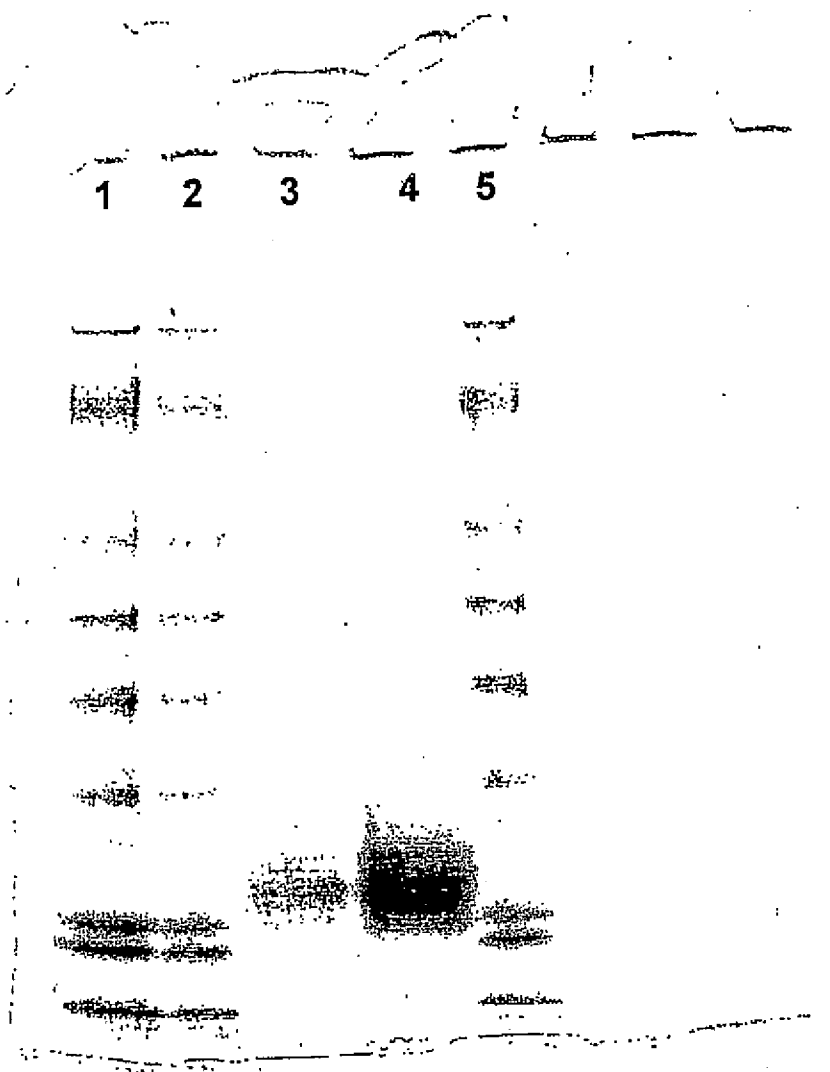


FIG. 165

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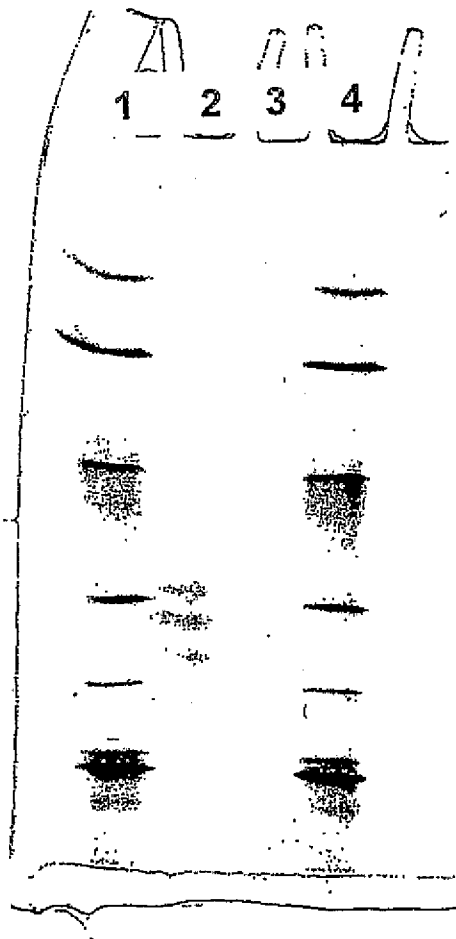


FIG. 166

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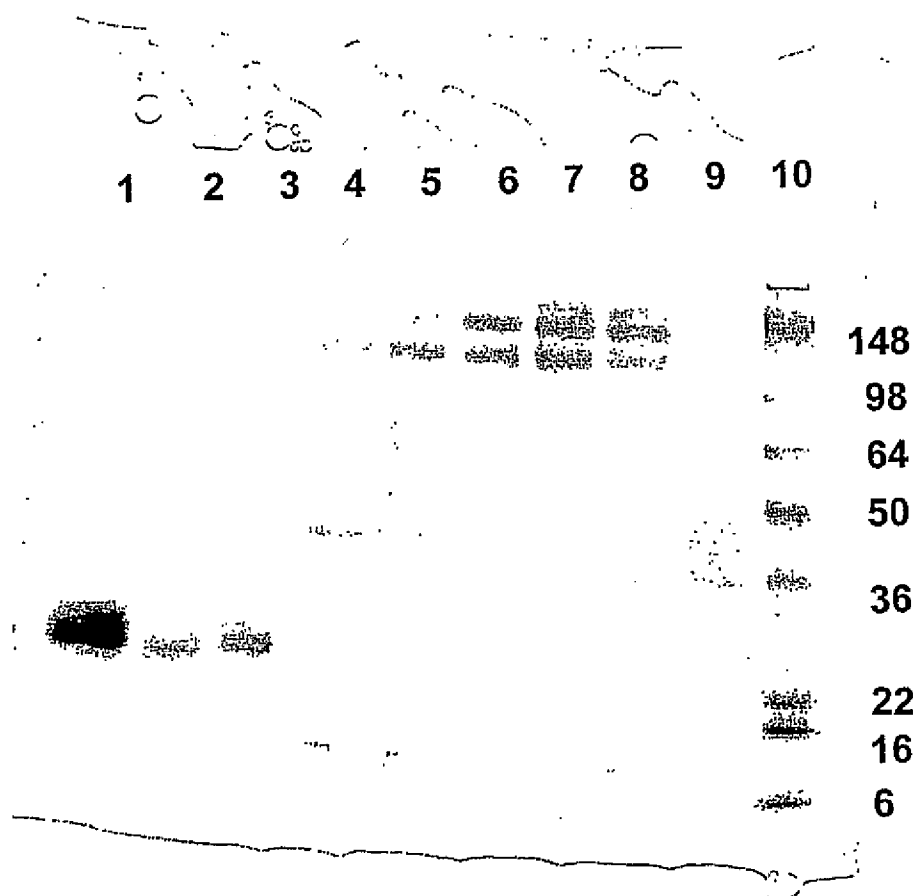


FIG. 167

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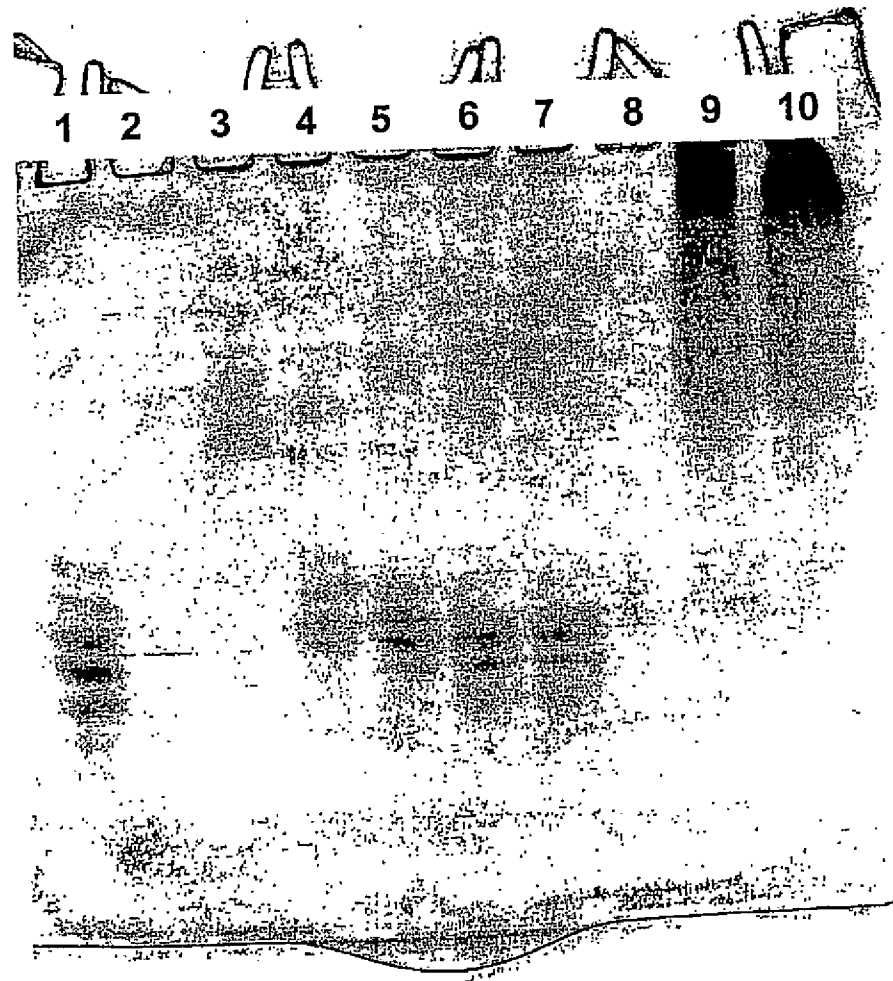


FIG. 168

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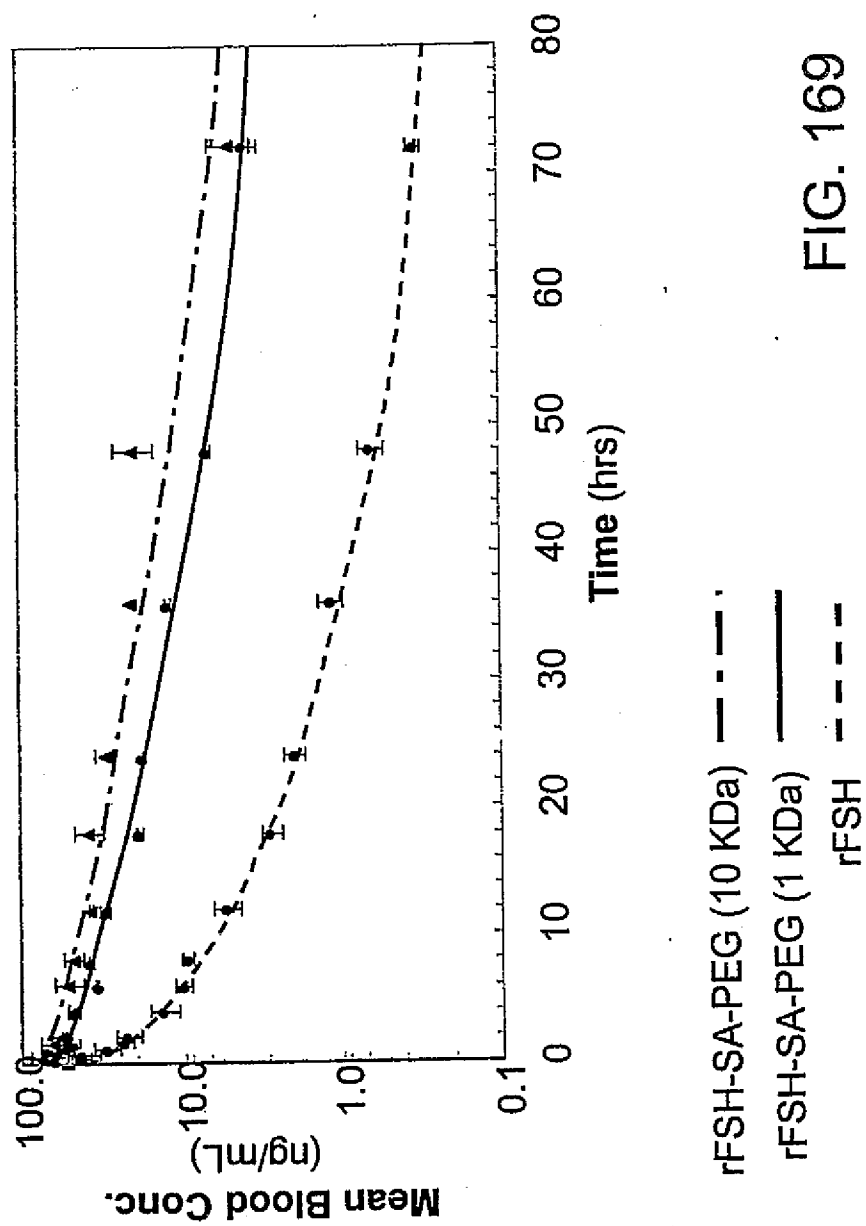


FIG. 169

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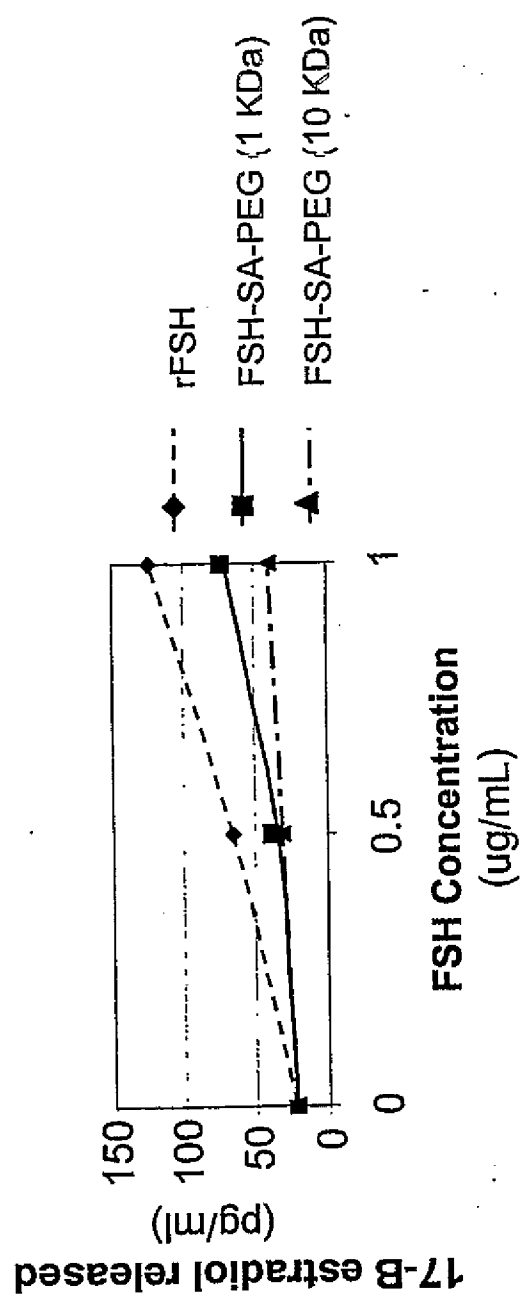


FIG. 170

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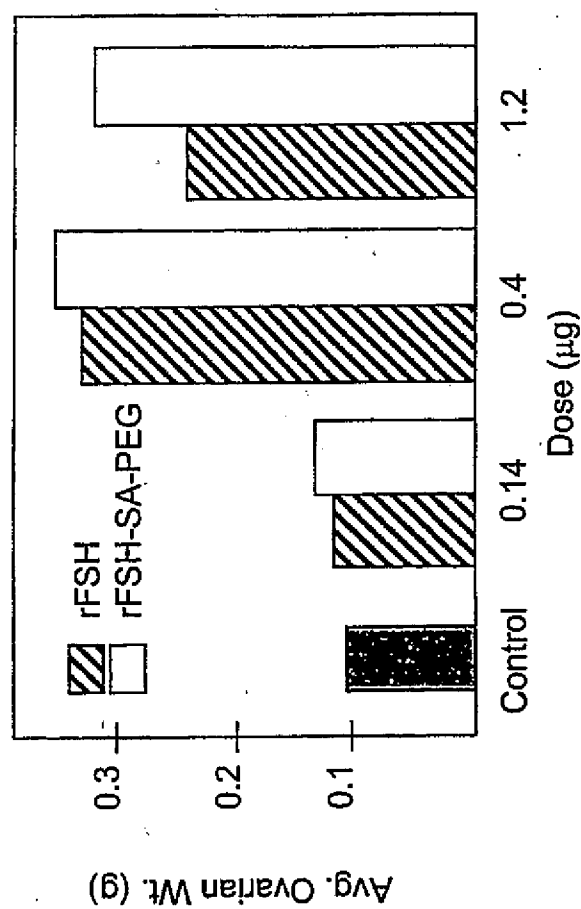


FIG. 171

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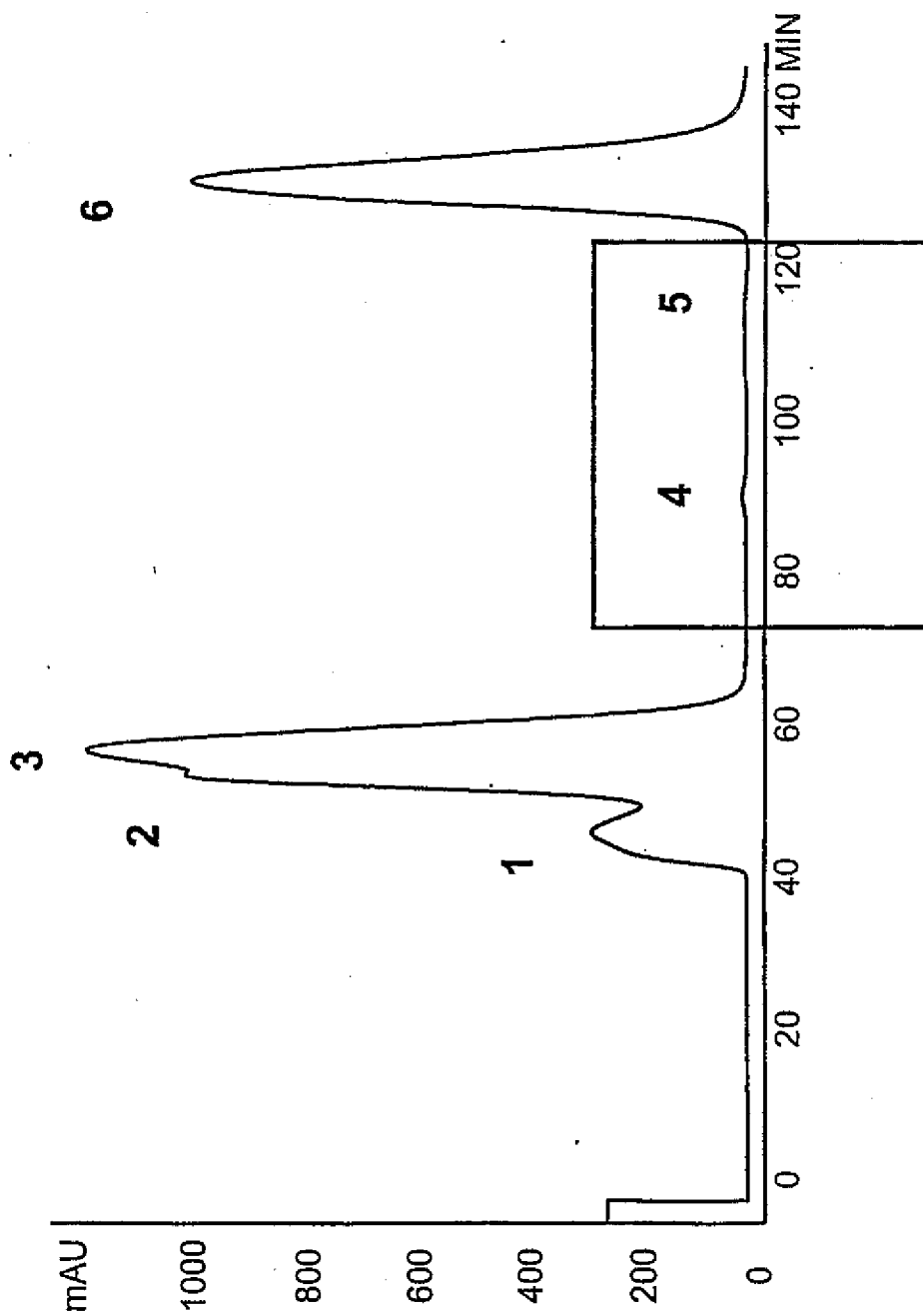


FIG. 172A

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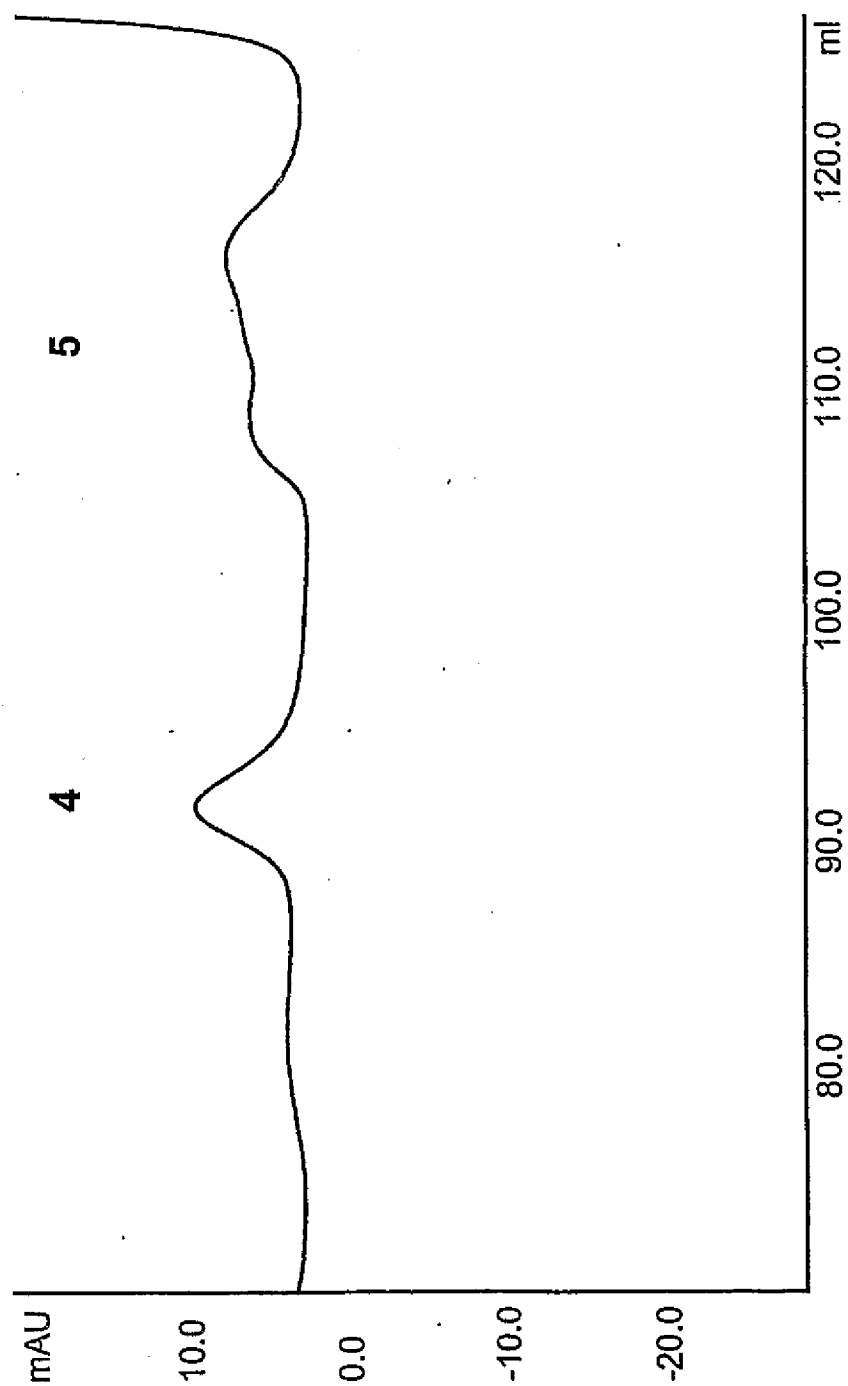


FIG. 172B

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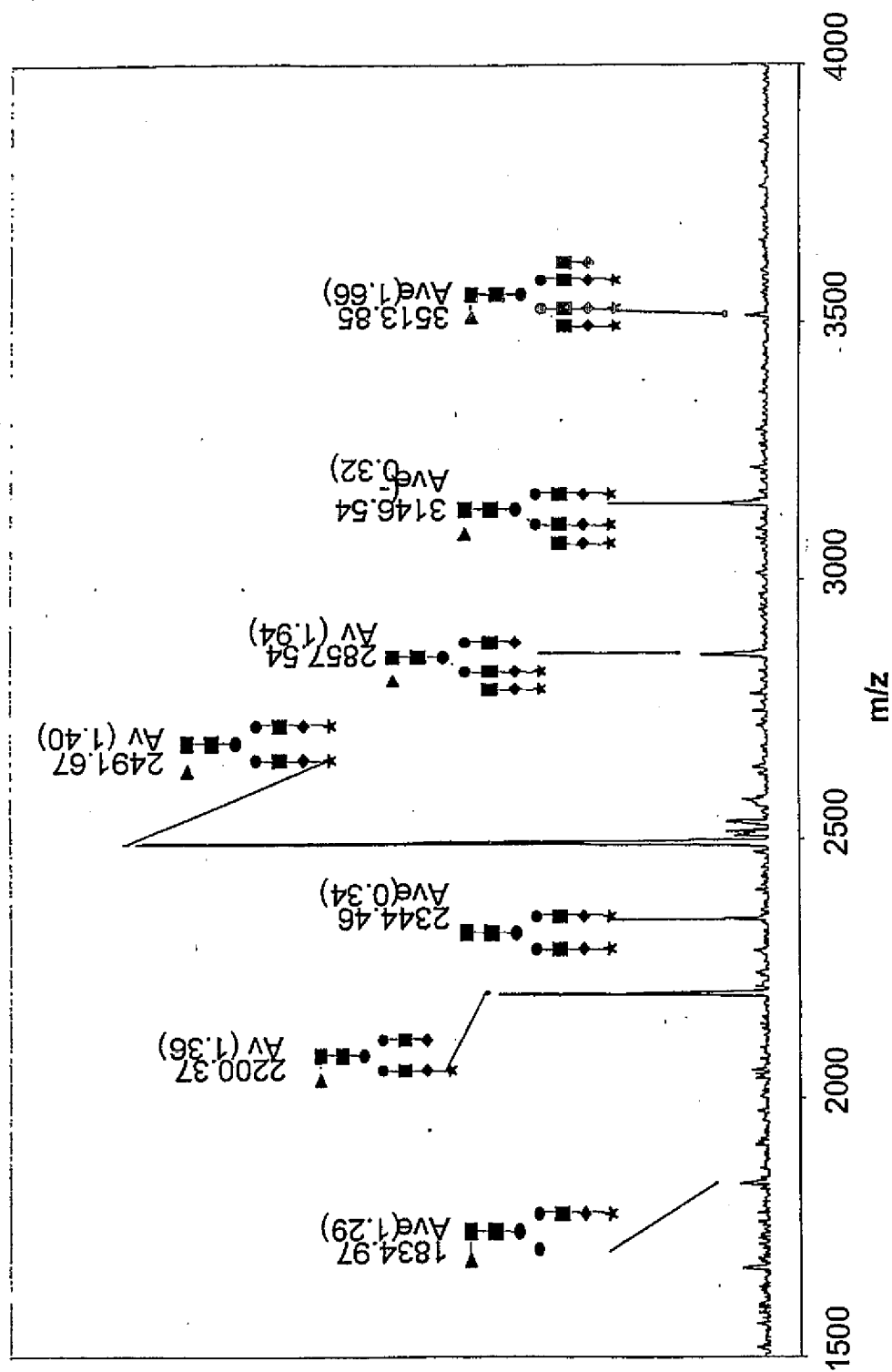


FIG. 173A

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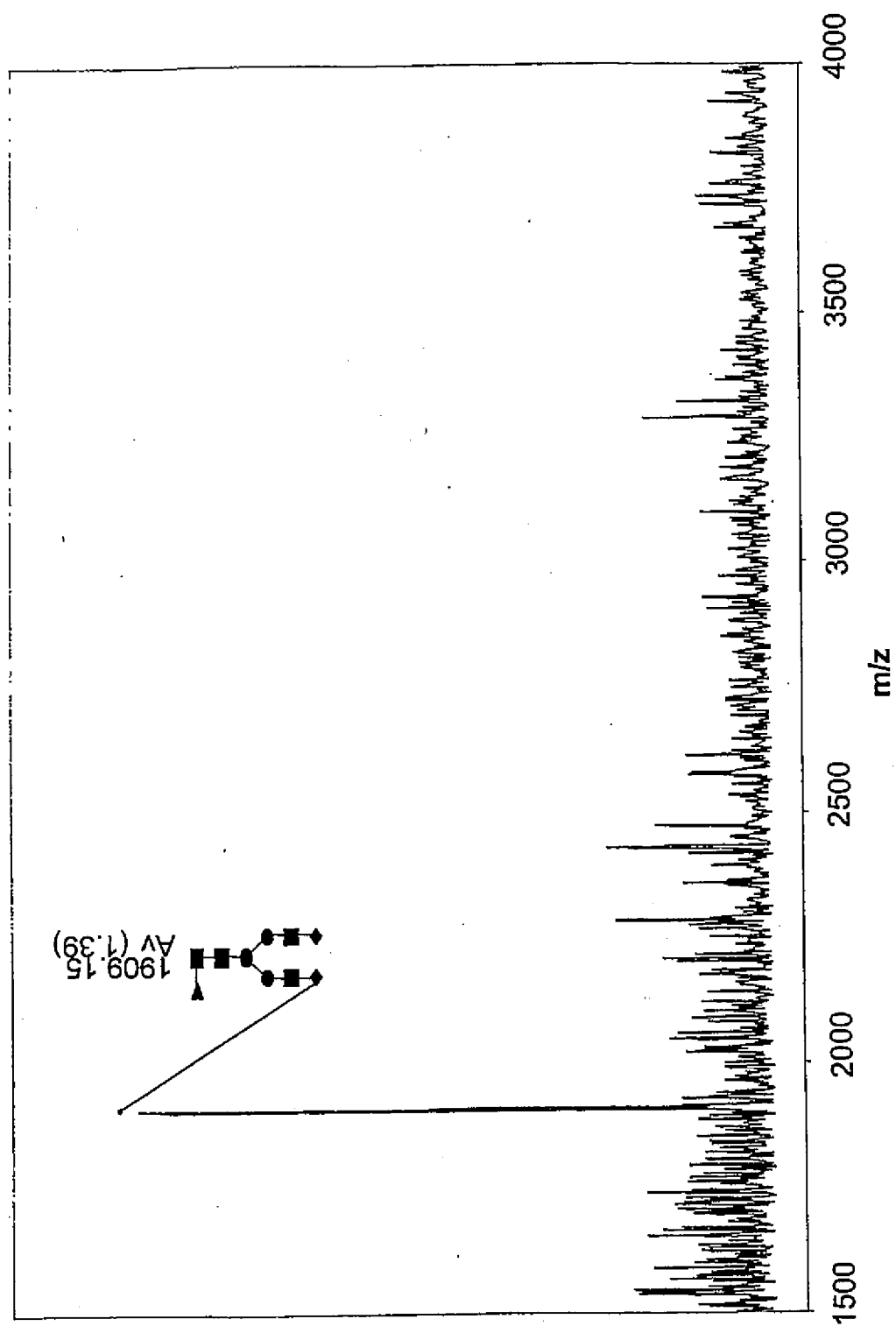


FIG. 173B

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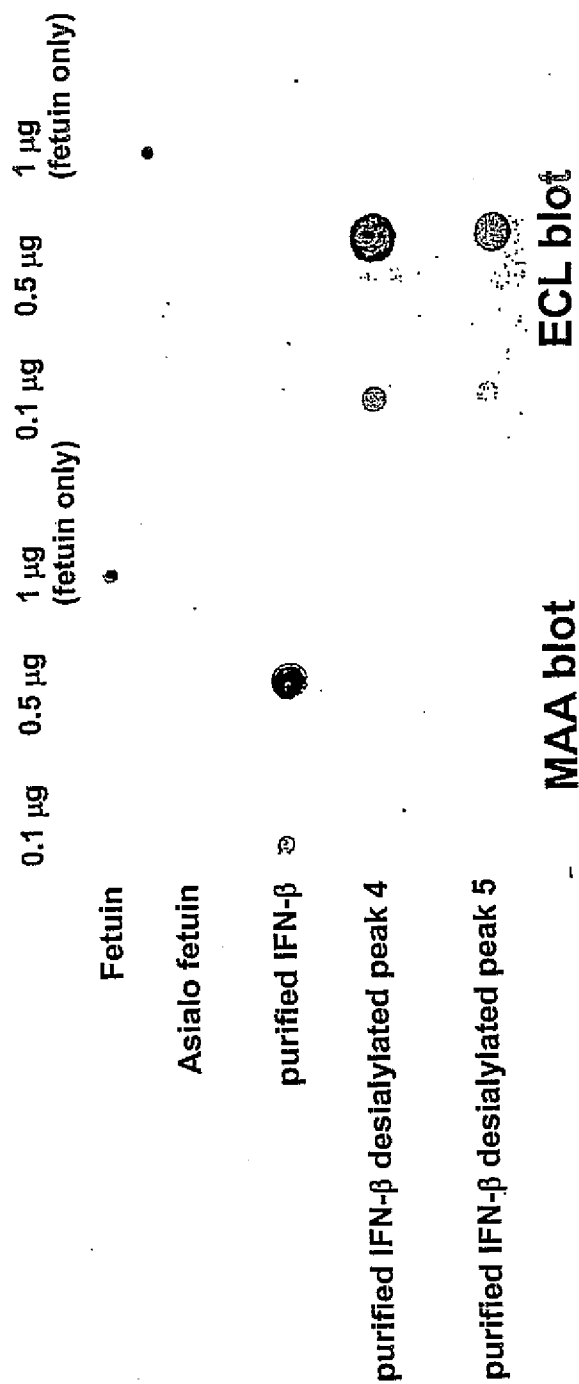


FIG. 174

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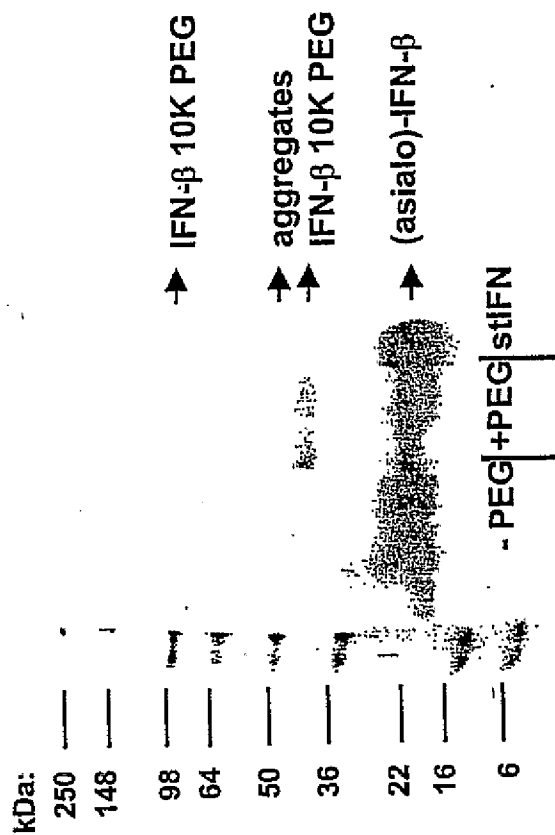
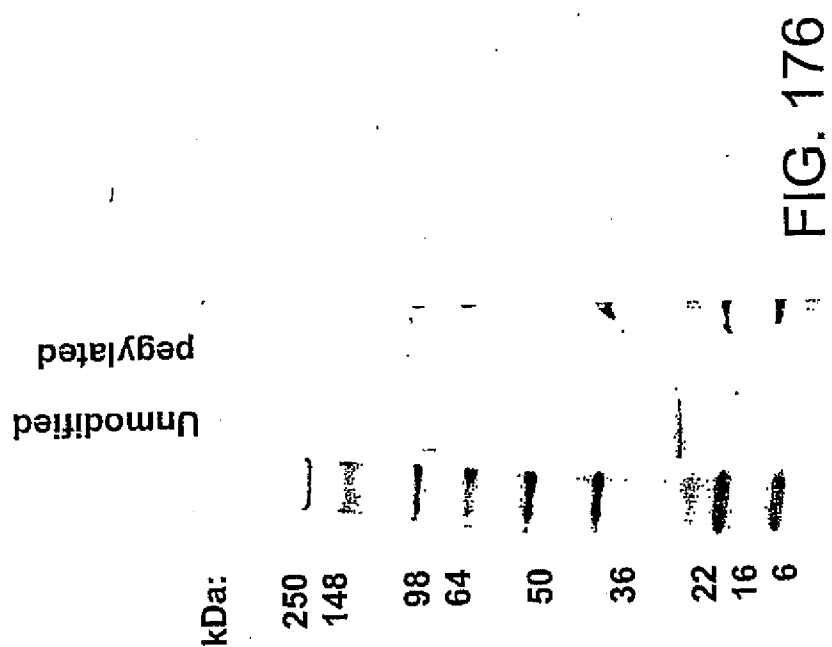


FIG. 175

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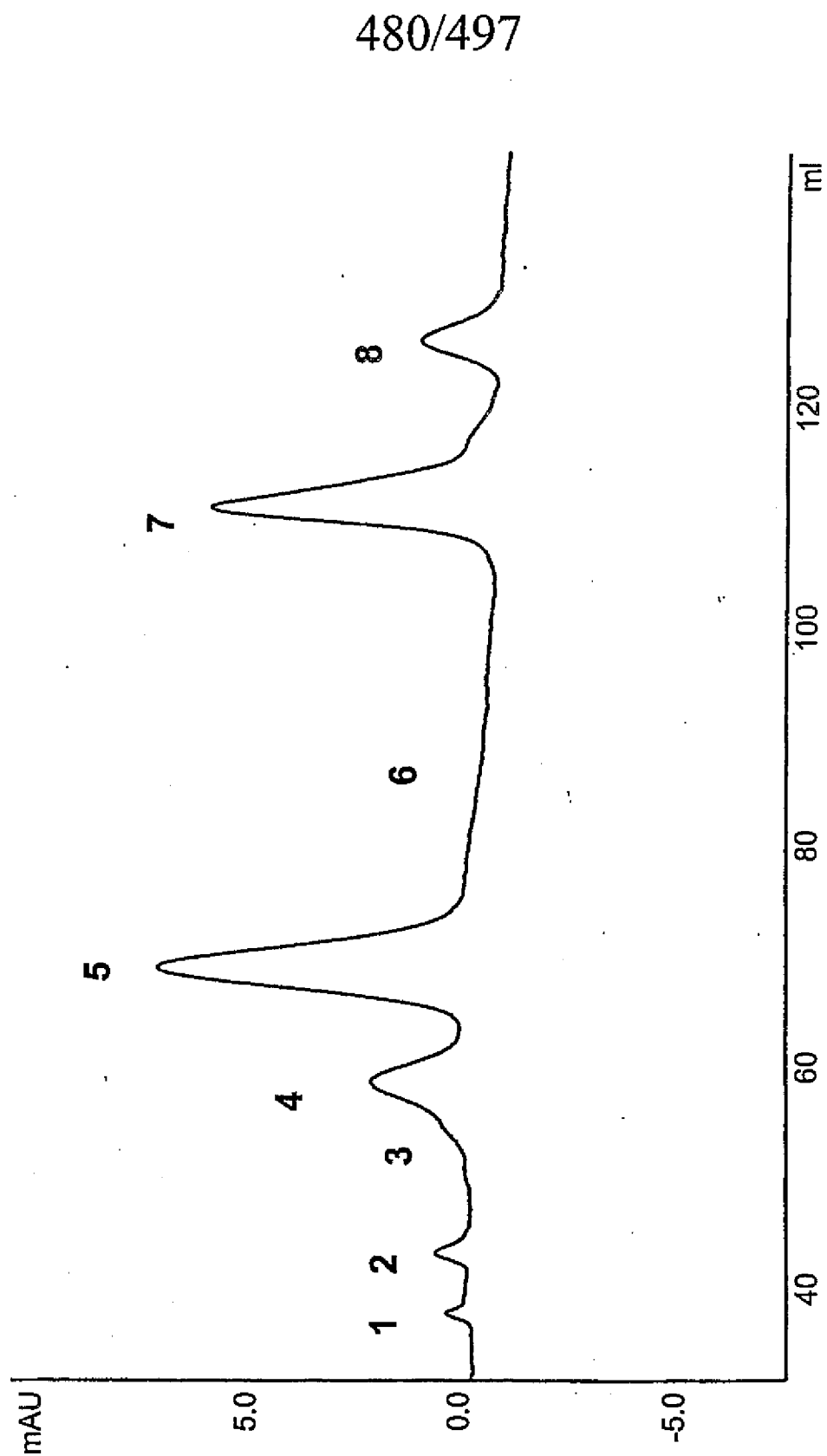


FIG. 177

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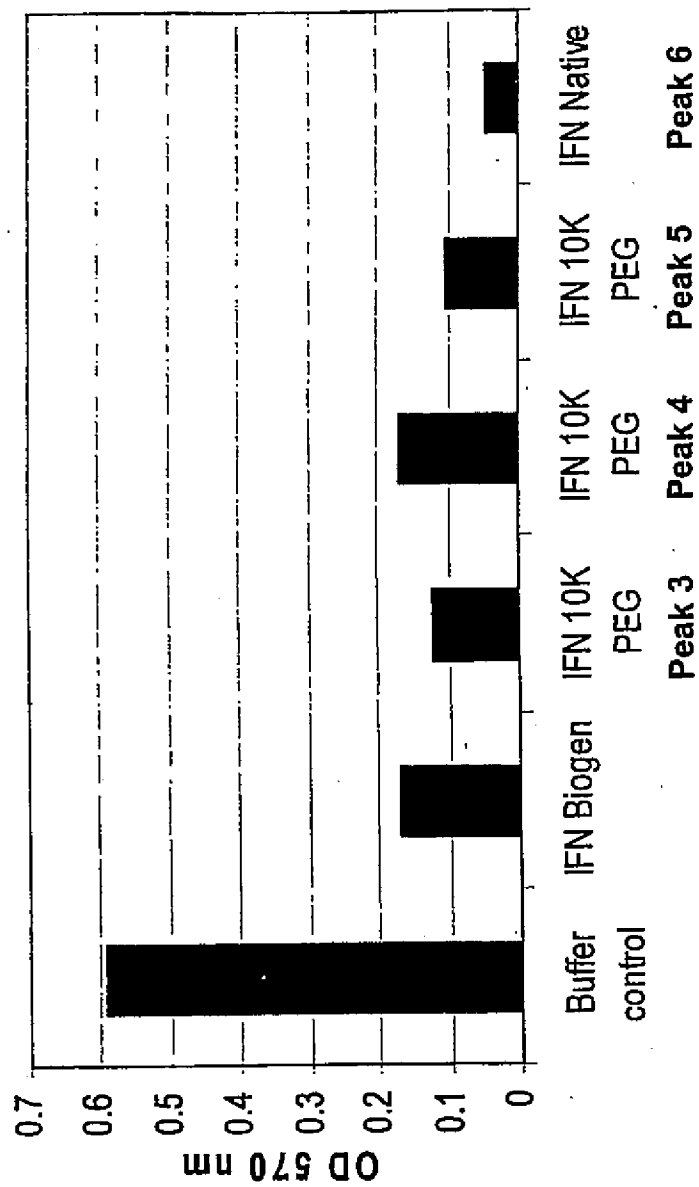


FIG. 178

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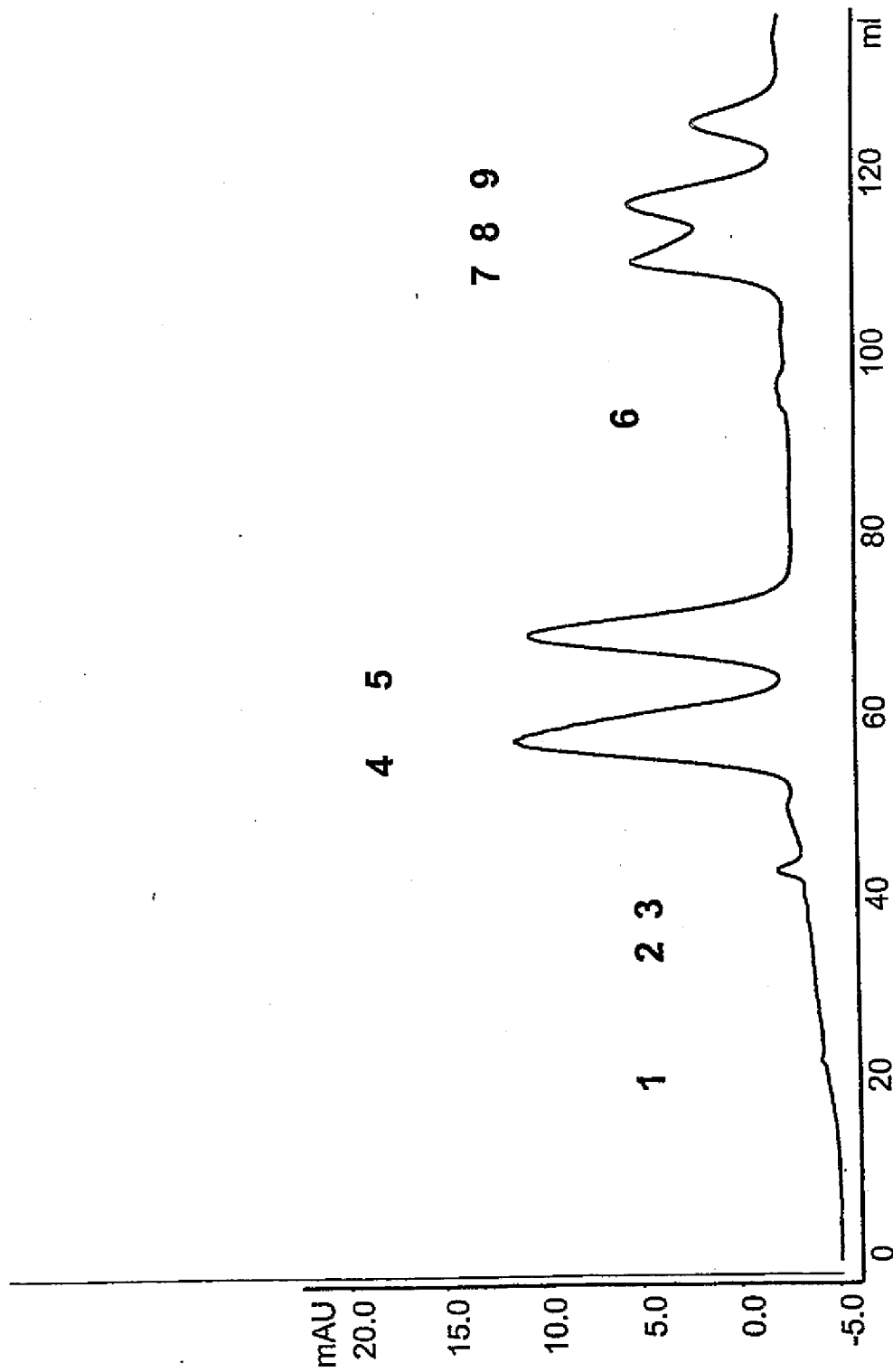


FIG. 179

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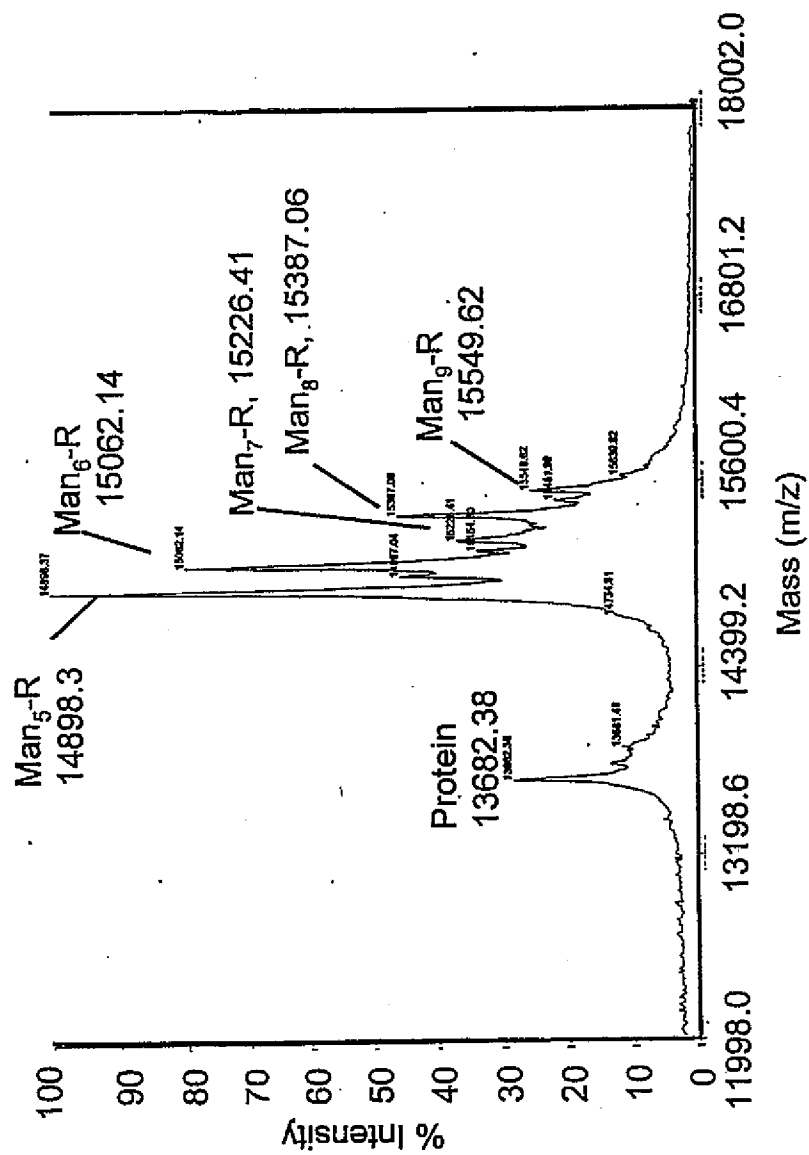


FIG. 180A

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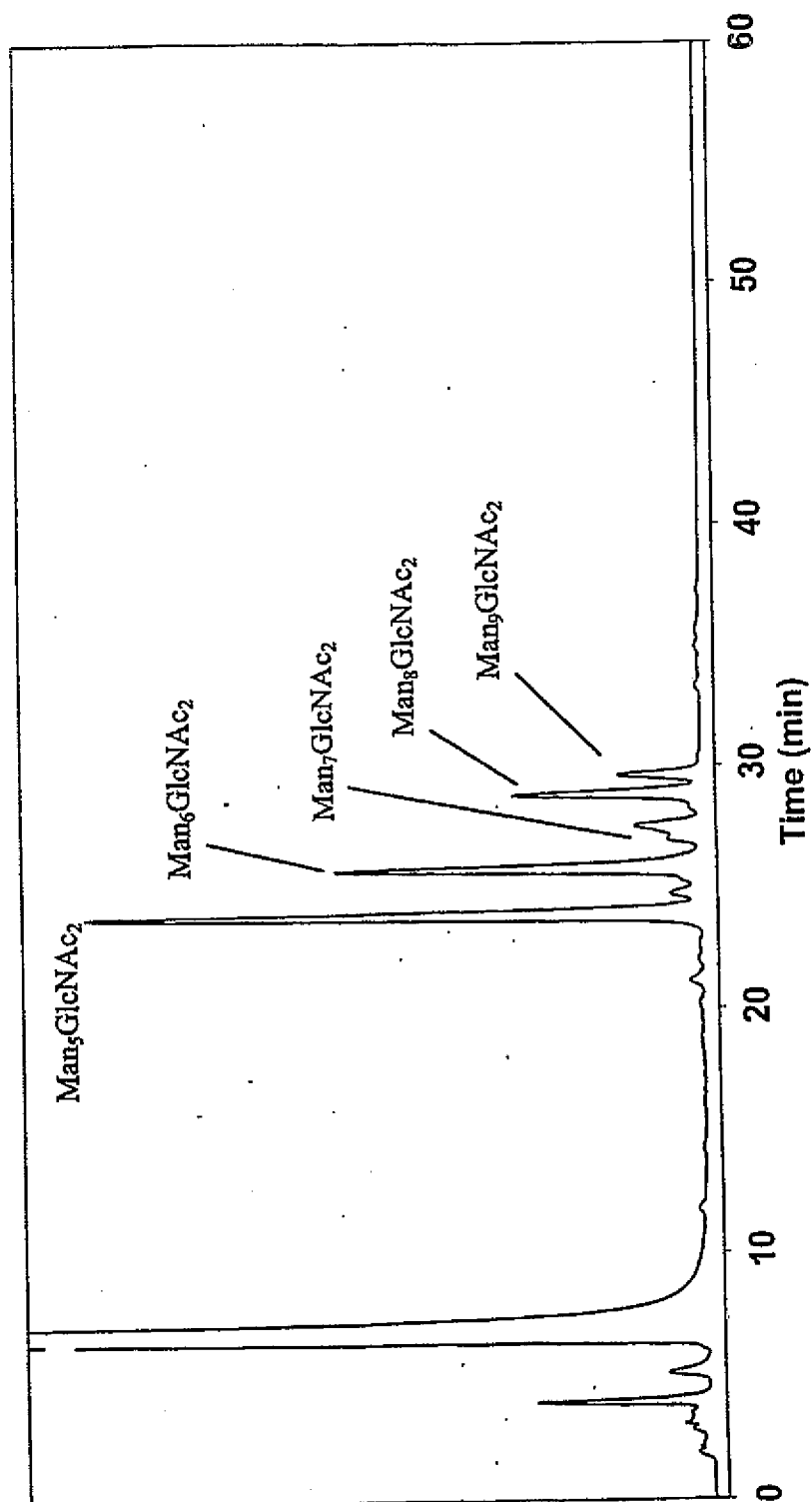


FIG. 180B

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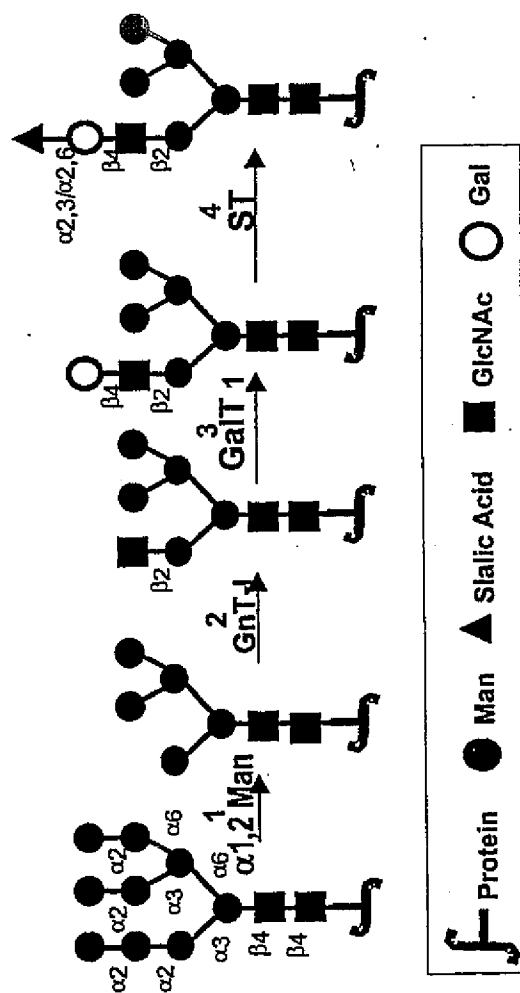


FIG. 181

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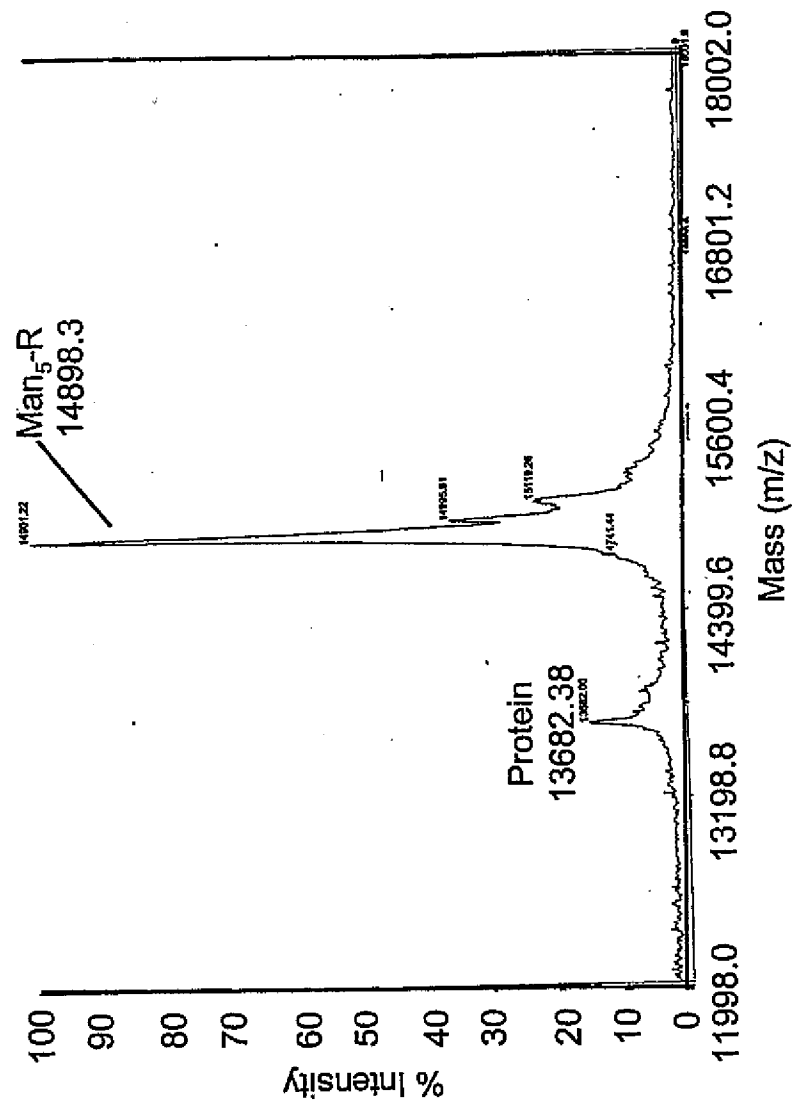


FIG. 182A

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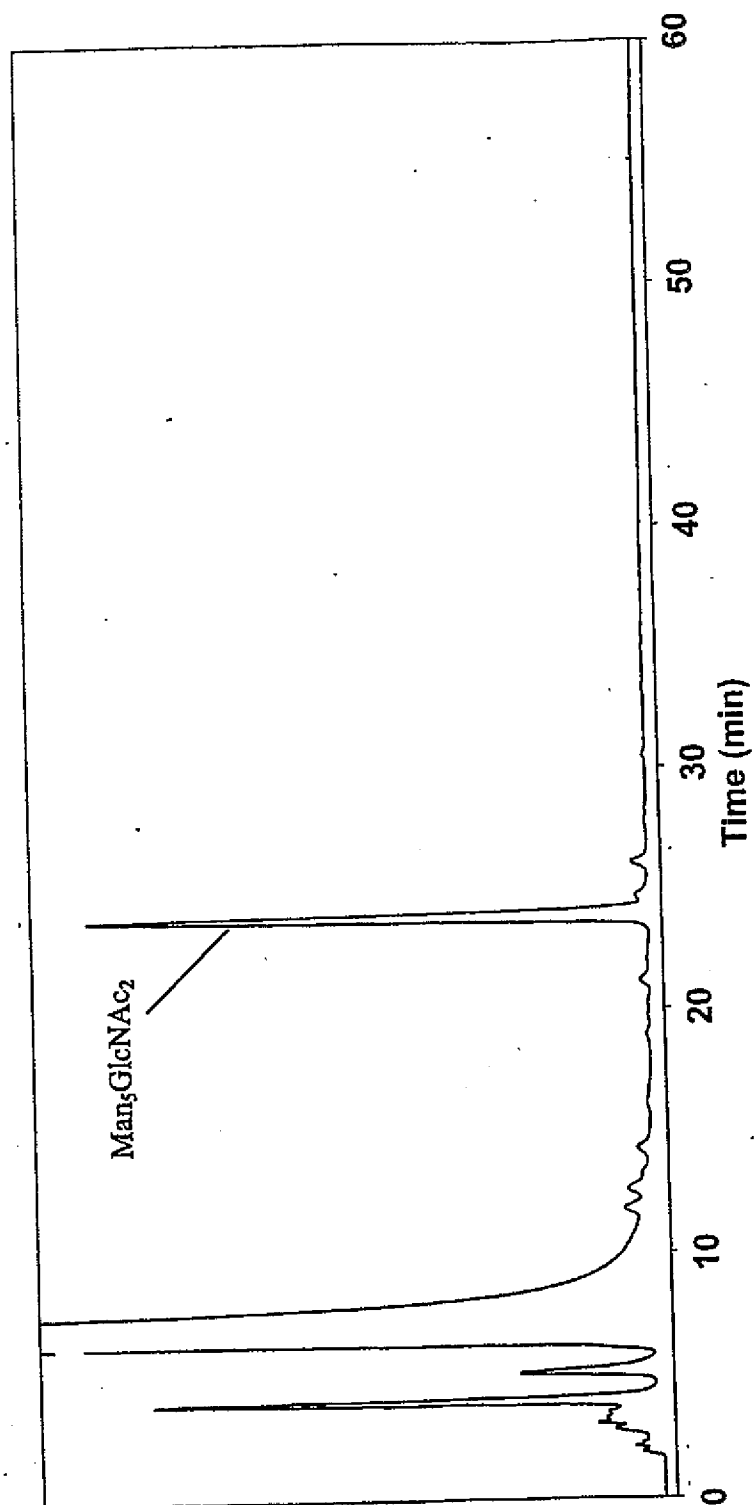


FIG. 182B

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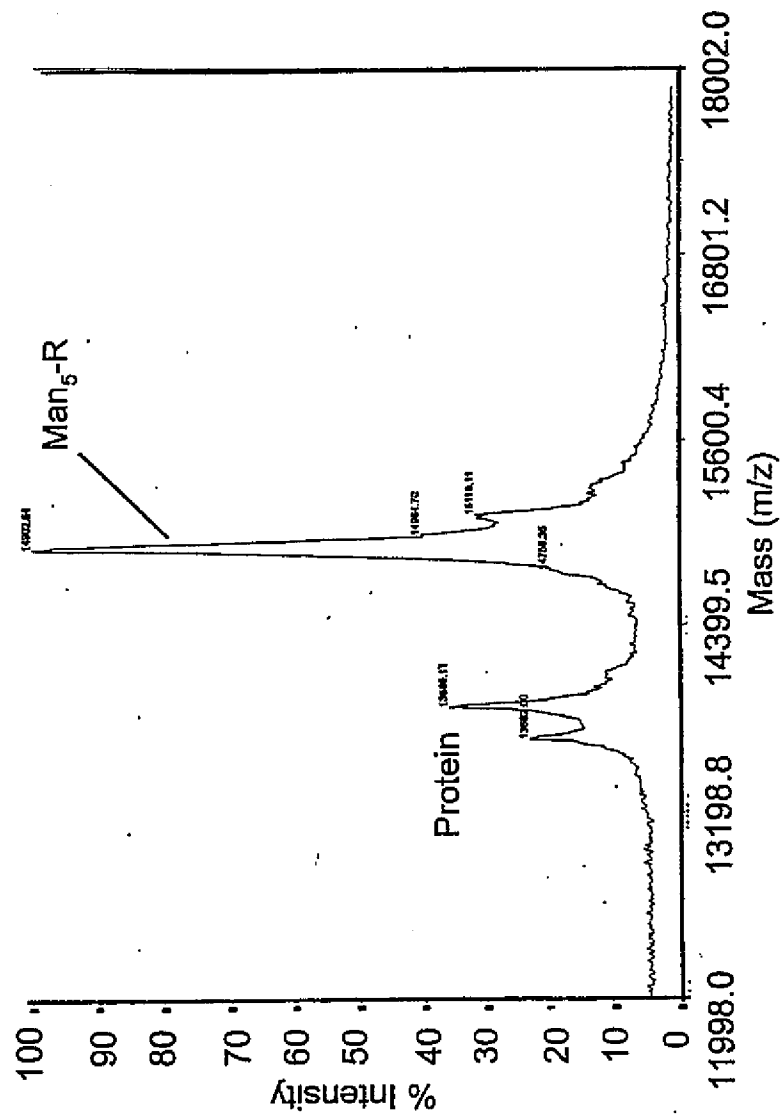


FIG. 183

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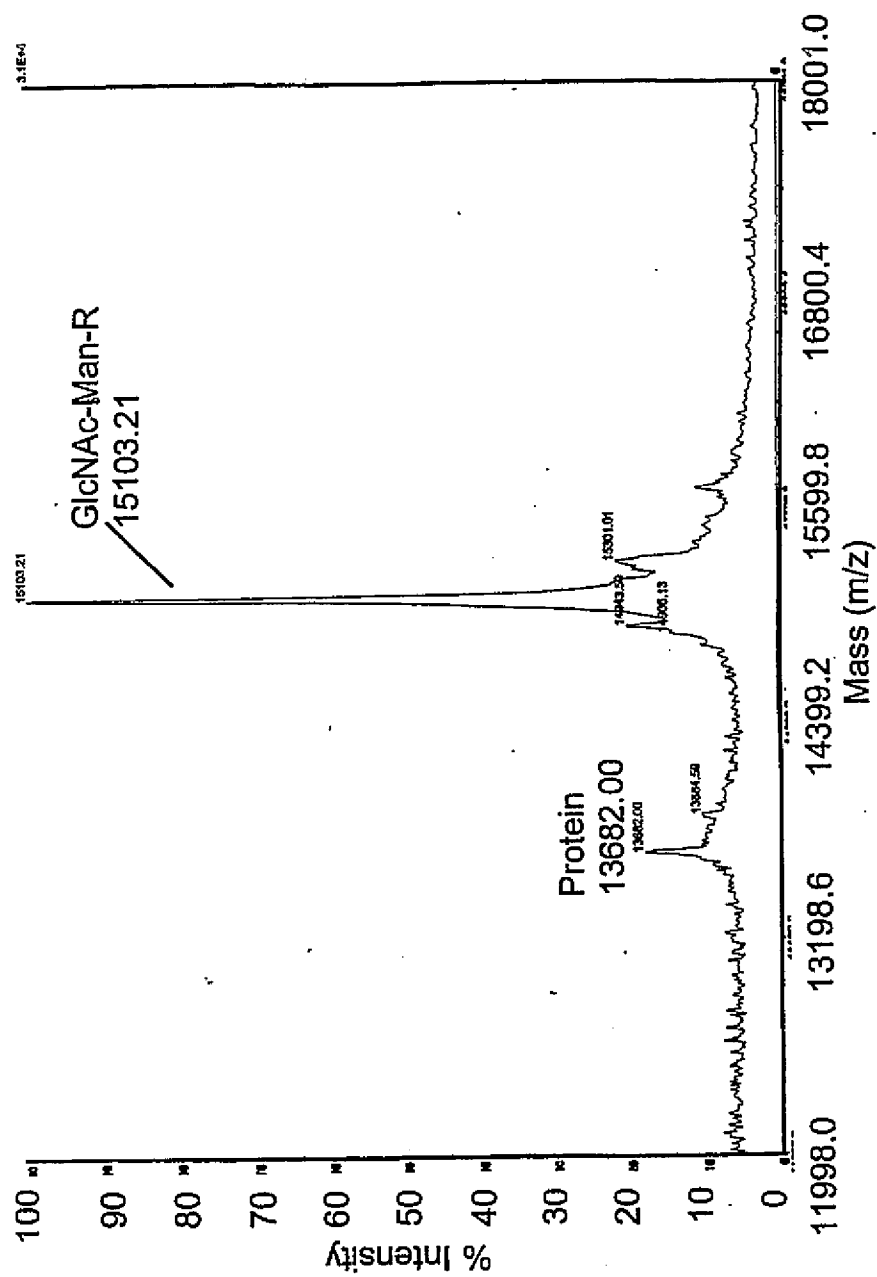


FIG. 184

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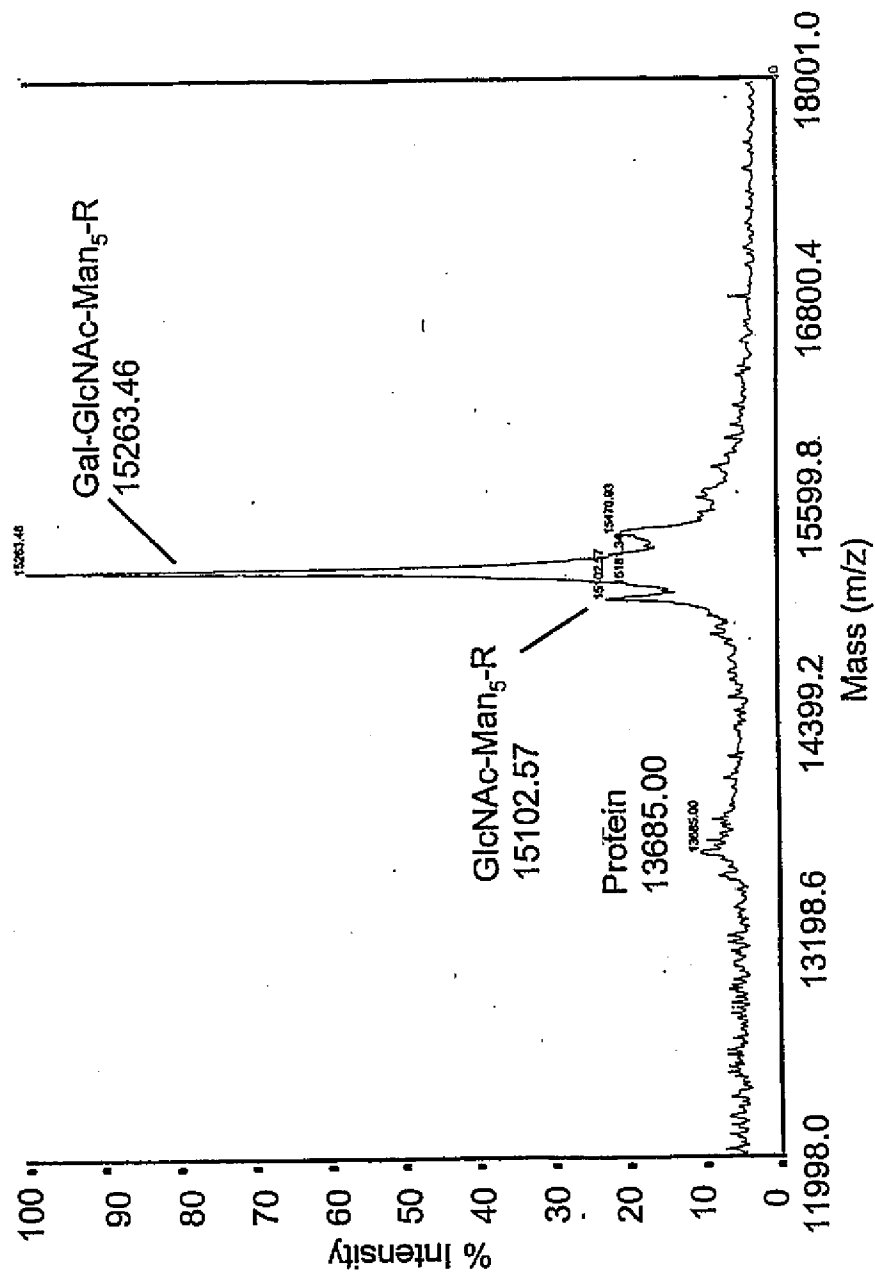


FIG. 185

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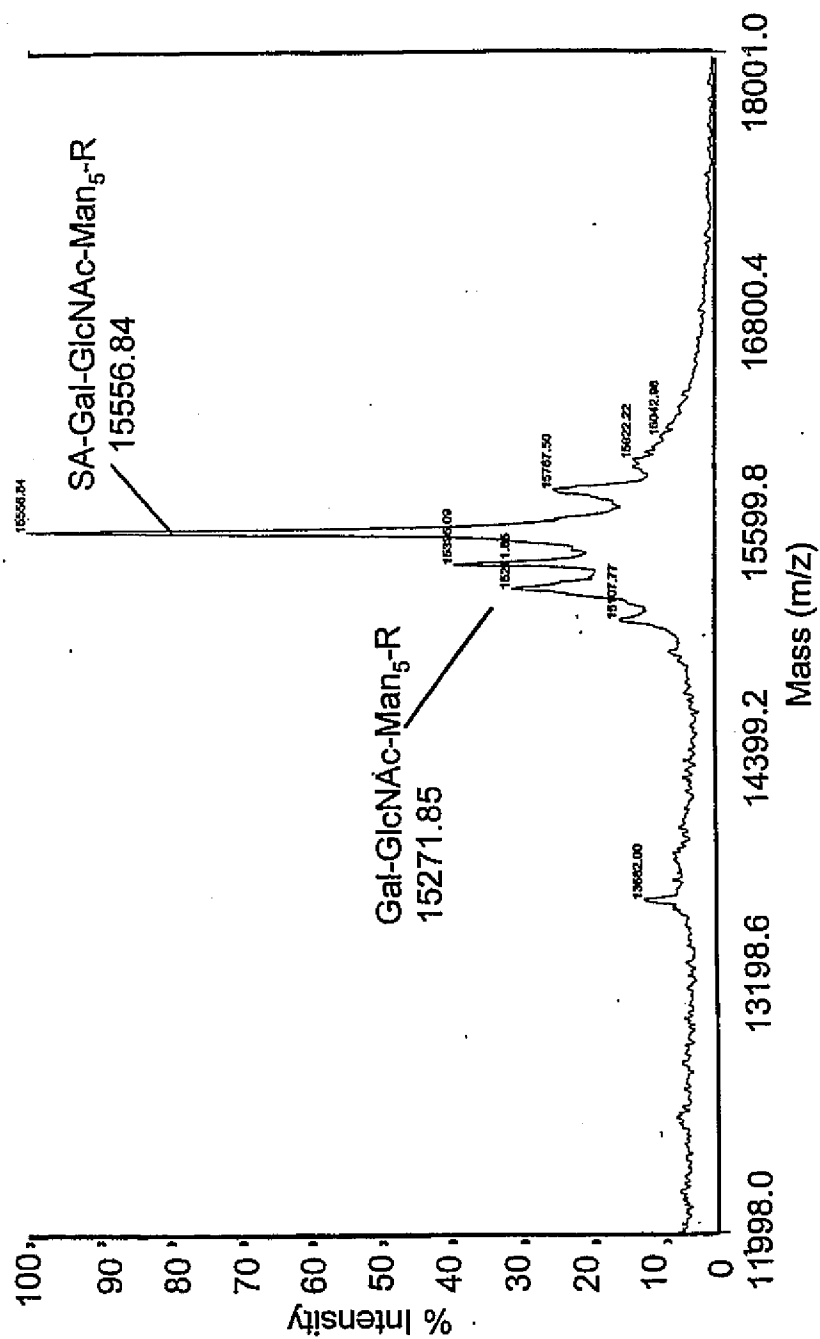


FIG. 186

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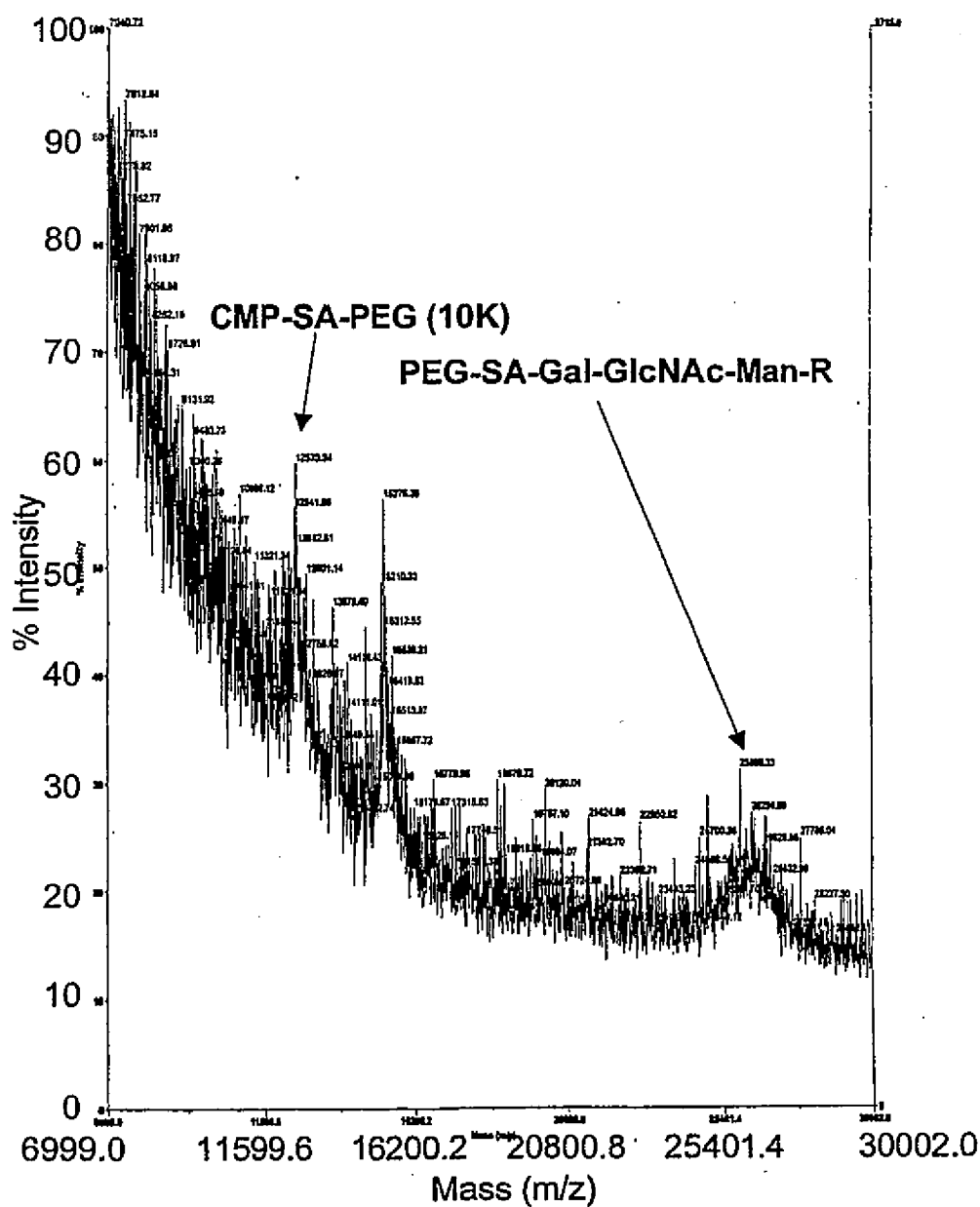


FIG. 187A

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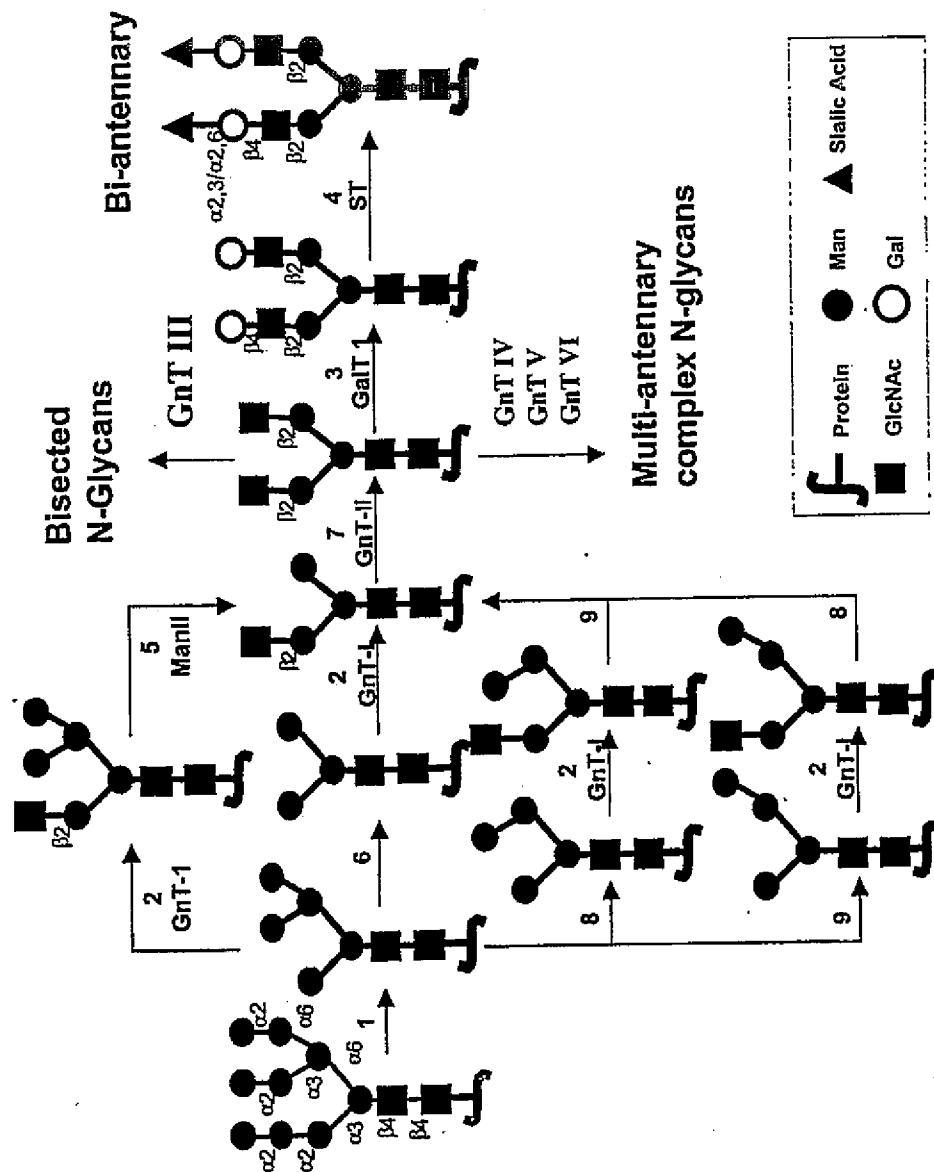


FIG. 188

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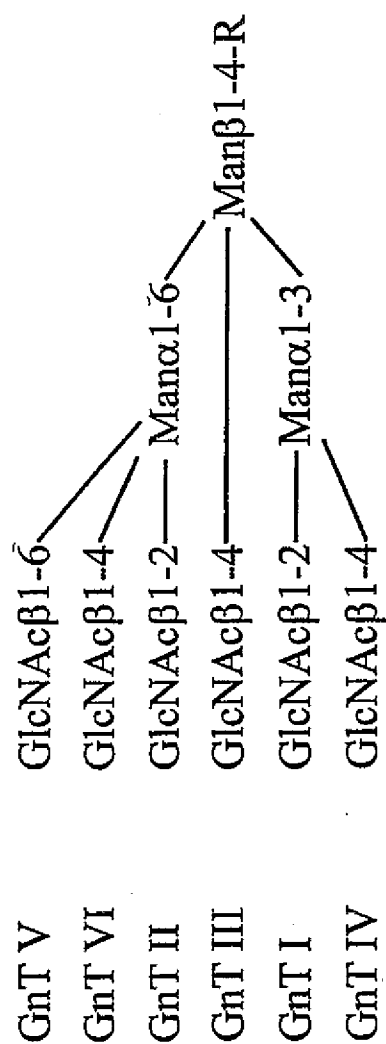


FIG. 189

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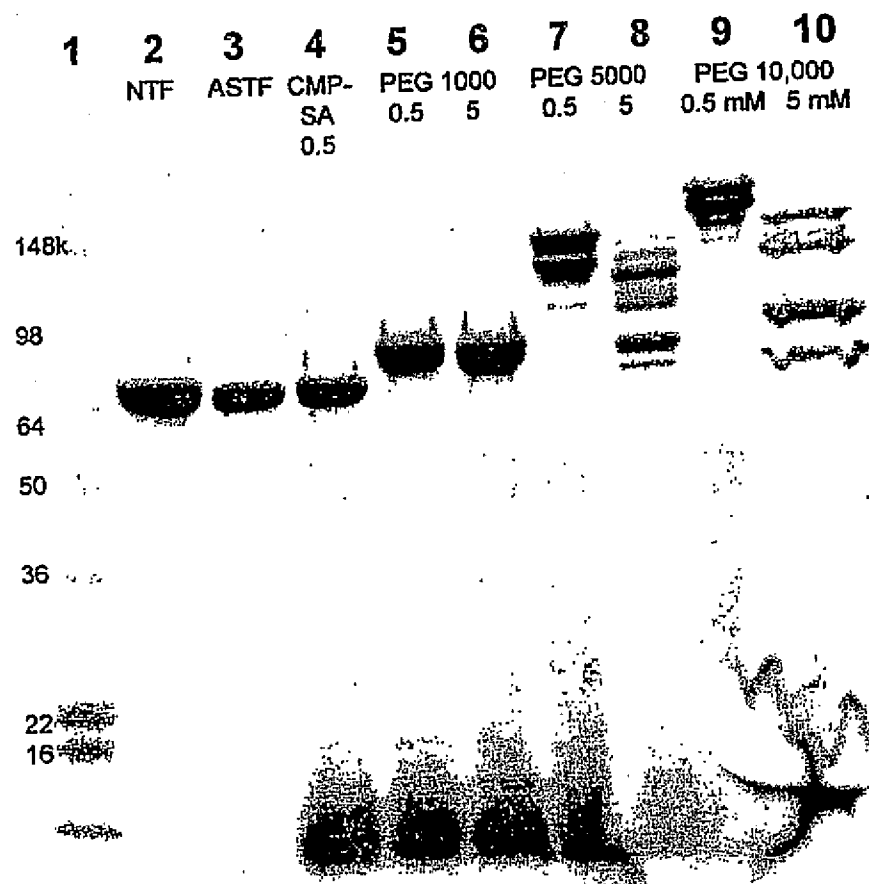


FIG. 190

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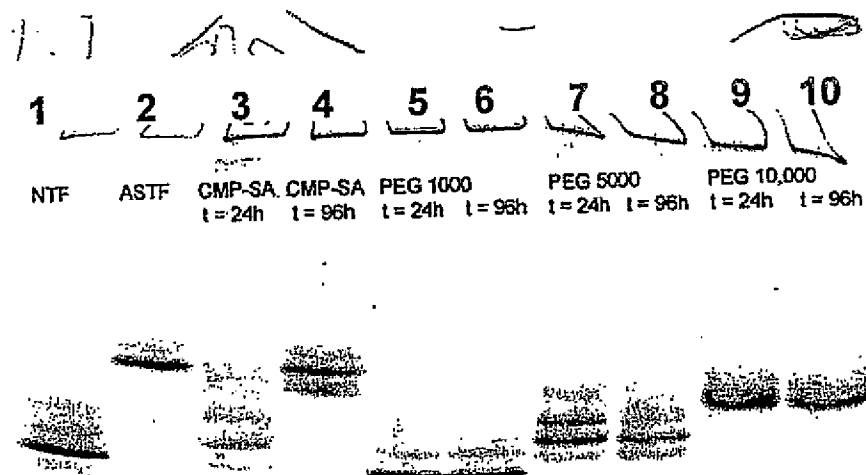


FIG. 191

SEQUENCE LISTING

<110> Neose Technologies, Inc.
DeFrees, Shawn
Zopf, David
Bayer, Robert
Hakes, David
Chen, Xi
Bowe, Caryne

<120> GLYCOPEGYLATION METHODS AND PROTEINS/PEPTIDES PRODUCED BY THE
METHODS

<130> 040853-01-5051WO

<150> US 60/328,523
<151> 2001-10-10

<150> US 60/334,233
<151> 2001-11-28

<150> US 60/334,301
<151> 2001-11-28

<150> US 60/344,692
<151> 2001-10-19

<150> US 60/387,292
<151> 2002-06-07

<150> US 60/391,777
<151> 2002-06-25

<150> US 60/396,594
<151> 2002-07-17

<150> US 60/404,249
<151> 2002-08-16

<150> US 60/407,527
<151> 2002-08-28

<150> PCT/US02/32263
<151> 2002-10-09

<150> US 10/360,779
<151> 2003-02-19

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<151> 2003-01-06

<150> US 10/287,994
<151> 2002-11-05

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120

ctgtgccacc ccgaggagct ggtgctgctc ggacactctc tgggcatccc ctgggctccc
180

ctgagcagct gccccagcca ggccctgcag ctggcaggct gcttgagcca actccatagc
240

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360

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420

gcctctgctt tccagcgccg ggcaggaggg gtccctgggtg cctcccatct gcagagcttc
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20 25 30

Glu Lys Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val
35 40 45

Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys
50 55 60

Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
65 70 75 80

Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser
85 90 95

Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
100 105 110

Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
115 120 125

Ala Leu Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe

Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe
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Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro
 165 170

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 120
 tgcaataata aaacattaac ttatatacttt ttaatttaat gtatagaata gagatataca
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 taggatatgt aaatagatac acagtgtata tgtgattaaa atataatggg agattcaatc
 240
 agaaaaaagt ttctaaaaag gctctggggg aaaagaggaa ggaaacaata atgaaaaaaa
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 360
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 420
 taggcacaaa gcaaggtctt cagagaacct ggagcctaag gtttaggctc acccatttca
 480
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 780
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 840
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 900
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 960

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1020

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1080

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1320

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1380

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1500

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1620

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1680

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1733

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Lys Ser Ser Cys Ser Val Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30
Gly Ser Arg Arg Thr Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45
Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60
Glu Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu His
65 70 75 80

Glu⁸⁵ Met⁸⁵ Phe⁸⁵ Gln⁸⁵ Gln⁸⁵ Ile⁸⁵ Phe⁸⁵ Asn⁸⁵ Leu⁸⁵ Phe⁸⁵ Ser⁸⁵ Thr⁸⁵ Lys⁸⁵ Asp⁸⁵ Ser⁸⁵ Ser⁸⁵
 85 90 95

Ala¹⁰⁰ Ala¹⁰⁰ Trp¹⁰⁰ Asp¹⁰⁰ Glu¹⁰⁰ Thr¹⁰⁰ Leu¹⁰⁰ Leu¹⁰⁰ Asp¹⁰⁰ Lys¹⁰⁰ Phe¹⁰⁰ Tyr¹⁰⁰ Thr¹⁰⁰ Glu¹⁰⁰ Leu¹⁰⁰ Tyr¹⁰⁰
 100 105 110

Gln¹¹⁵ Gln¹¹⁵ Leu¹¹⁵ Asn¹¹⁵ Asp¹¹⁵ Leu¹¹⁵ Glu¹¹⁵ Ala¹¹⁵ Cys¹¹⁵ Val¹¹⁵ Ile¹¹⁵ Gln¹¹⁵ Gly¹¹⁵ Val¹¹⁵ Gly¹¹⁵ Val¹¹⁵
 115 120 125

Thr¹³⁰ Glu¹³⁰ Thr¹³⁰ Pro¹³⁰ Leu¹³⁰ Met¹³⁰ Lys¹³⁰ Glu¹³⁰ Asp¹³⁰ Ser¹³⁰ Ile¹³⁰ Leu¹³⁰ Ala¹³⁰ Val¹³⁰ Arg¹³⁰ Lys¹³⁰
 130 135 140

Tyr¹⁴⁵ Phe¹⁴⁵ Gln¹⁴⁵ Arg¹⁴⁵ Ile¹⁴⁵ Thr¹⁴⁵ Leu¹⁴⁵ Tyr¹⁴⁵ Leu¹⁴⁵ Lys¹⁴⁵ Glu¹⁴⁵ Lys¹⁴⁵ Lys¹⁴⁵ Tyr¹⁴⁵ Ser¹⁴⁵ Pro¹⁴⁵
 145 150 155 160

Cys¹⁶⁵ Ala¹⁶⁵ Trp¹⁶⁵ Glu¹⁶⁵ Val¹⁶⁵ Val¹⁶⁵ Arg¹⁶⁵ Ala¹⁶⁵ Glu¹⁶⁵ Ile¹⁶⁵ Met¹⁶⁵ Arg¹⁶⁵ Ser¹⁶⁵ Phe¹⁶⁵ Ser¹⁶⁵ Leu¹⁶⁵
 165 170 175

Ser¹⁸⁰ Thr¹⁸⁰ Asn¹⁸⁰ Leu¹⁸⁰ Gln¹⁸⁰ Glu¹⁸⁰ Ser¹⁸⁰ Leu¹⁸⁰ Arg¹⁸⁰ Ser¹⁸⁰ Lys¹⁸⁰ Glu¹⁸⁰
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 120

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 180

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 300

aatgagacta ttgttgagaa cctcctggct aatgtctatc atcagataaa ccatctgaag
 360

acagtccctgg aagaaaaact ggagaaagaa gattttacca ggggaaaact catgagcagt
 420

ctgcacctga aaagatatta tgggaggatt ctgcattacc tgaaggccaa ggagtacagt
 480

cactgtgcct ggaccatagt cagagtggaa atoctaagga acttttactt cattaacaga
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cttacagggtt acctccgaaa ctgaagatct cctagcctgt ccctctggga ctggacaatt
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gcttcaagca ttcttcaacc agcagatgct gtttaagtga ctgatggcta atgtactgca
 660

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Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile
65 70 75 80
Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser
85 90 95
Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val
100 105 110
Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu
115 120 125
Lys Glu Asp Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys
130 135 140
Arg Tyr Tyr Gly Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser
145 150 155 160
His Cys Ala Trp Thr Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr
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180 185

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120

gcgttcctgg aggagctggg gccgggctcc ctggagaggg agtgcaagga ggagcagtgc
180

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240

tcttacagtg atggggacca gtgtgcctca agtccatgcc agaatggggg ctcttgcaag
300

gaccagctcc agtctatat ctgcttctgc ctccctgcct tcgagggccg gaactgtgag
360

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420

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480

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540

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600

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660

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720

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1200

agctggggcc agggctgcgc aaccgtgggc cactttgggg tgtacaccag ggtctccag
1260

tacatcgagt ggctgcaaaa gctcatgcgc tcagagccac gcccaggagt cctcctgcga
1320

gccccatttc cc
1332

<210> 8
<211> 444
<212> PRT
<213> Homo sapiens

<400> 8
Met Val Ser Gln Ala Leu Arg Leu Leu Cys Leu Leu Leu Gly Leu Gln
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Gly Cys Leu Ala Ala Val Phe Val Thr Gln Glu Glu Ala His Gly Val
20 25 30
Leu His Arg Arg Arg Arg Ala Asn Ala Phe Leu Glu Glu Leu Arg Pro
35 40 45
Gly Ser Leu Glu Arg Glu Cys Lys Glu Glu Gln Cys Ser Phe Glu Glu
50 55 60
Ala Arg Glu Ile Phe Lys Asp Ala Glu Arg Thr Lys Leu Phe Trp Ile
65 70 75 80
Ser Tyr Ser Asp Gly Asp Gln Cys Ala Ser Ser Pro Cys Gln Asn Gly
85 90 95
Gly Ser Cys Lys Asp Gln Leu Gln Ser Tyr Ile Cys Phe Cys Leu Pro
100 105 110
Ala Phe Glu Gly Arg Asn Cys Glu Thr His Lys Asp Asp Gln Leu Ile
115 120 125
Cys Val Asn Glu Asn Gly Gly Cys Glu Gln Tyr Cys Ser Asp His Thr
130 135 140
Gly Thr Lys Arg Ser Cys Arg Cys His Glu Gly Tyr Ser Leu Leu Ala
145 150 155 160
Asp Gly Val Ser Cys Thr Pro Thr Val Glu Tyr Pro Cys Gly Lys Ile
165 170 175
Pro Ile Leu Glu Lys Arg Asn Ala Ser Lys Pro Gln Gly Arg Ile Val
180 185 190
Gly Gly Lys Val Cys Pro Lys Gly Glu Cys Pro Trp Gln Val Leu Leu
195 200 205
Leu Val Asn Gly Ala Gln Leu Cys Gly Gly Thr Leu Ile Asn Thr Ile
210 215 220
Trp Val Val Ser Ala Ala His Cys Phe Asp Lys Ile Lys Asn Trp Arg
225 230 235 240
Asn Leu Ile Ala Val Leu Gly Glu His Asp Leu Ser Glu His Asp Gly
245 250 255
Asp Glu Gln Ser Arg Arg Val Ala Gln Val Ile Ile Pro Ser Thr Tyr
260 265 270
Val Pro Gly Thr Thr Asn His Asp Ile Ala Leu Leu Arg Leu His Gln
275 280 285

Pro Val Val Leu Thr Asp His Val Val Pro Leu Cys Leu Pro Glu Arg
 290 295 300
 Thr Phe Ser Glu Arg Thr Leu Ala Phe Val Arg Phe Ser Leu Val Ser
 305 310 315 320
 Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu Glu Leu Met
 325 330 335
 Val Leu Asn Val Pro Arg Leu Met Thr Gln Asp Cys Leu Gln Gln Ser
 340 345 350
 Arg Lys Val Gly Asp Ser Pro Asn Ile Thr Glu Tyr Met Phe Cys Ala
 355 360 365
 Gly Tyr Ser Asp Gly Ser Lys Asp Ser Cys Lys Gly Asp Ser Gly Gly
 370 375 380
 Pro His Ala Thr His Tyr Arg Gly Thr Trp Tyr Leu Thr Gly Ile Val
 385 390 395 400
 Ser Trp Gly Gln Gly Cys Ala Thr Val Gly His Phe Gly Val Tyr Thr
 405 410 415
 Arg Val Ser Gln Tyr Ile Glu Trp Leu Gln Lys Leu Met Arg Ser Glu
 420 425 430
 Pro Arg Pro Gly Val Leu Leu Arg Ala Pro Phe Pro
 435 440

<210> 9
 <211> 1437
 <212> DNA
 <213> Homo sapiens

<400> 9
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 ggatatctac tcagtgtga atgtacagtt tttcttgatc atgaaaacgc caacaaaatt
 120
 ctgaatcggc caagaggta taattcaggt aaattggaag agtttggttca agggaaacctt
 180
 gagagagaat gtatggaaga aaagtgtagt tttgaagaac cagcagaagt ttttgaaaac
 240
 actgaaaaga caactgaatt ttggaagcag tatgttgatg gagatcagtg tgagtccaat
 300
 ccatgtttta atggcggcag ttgcaaggat gacattaatt cctatgaatg ttgggtgtccc
 360
 tttggatttg aaggaaagaa ctgtgaatta gatgtaacat gtaacattaa gaatggcaga
 420
 tgcgagcagt tttgtaaaaa tagtgctgat aacaaggtgg ttgctcctg tactgagggga
 480

tatcgaattg cagaacaaacca gaagtcctgt gaaccagcag tgccatttcc atgtggaaga
540

gtttctgttt cacaaacttc taagctcacc cgtgctgagg ctgtttttcc tgatgtggac
600

tatgtaaatc ctactgaagc tgaaccatt ttggataaca tcaactcaagg cacccaatca
660

tttaatgact tcaactcgggt tgttggtgga gaagatgcca aaccagggtca attoccttgg
720

caggttgttt tgaatggtaa agttgatgca ttctgtggag gctctatcgt taatgaaaaa
780

tggattgtaa ctgctgcca ctgtgttgaa actggtgtta aaattacagt tgcgcagggt
840

gaacataata ttgaggagac agaacataca gagcaaaagc gaaatgtgat tcgagcaatt
900

attcctcacc acaactacaa tgcagctatt aataagtaca accatgacat tgcccttctg
960

gaactggacg aacccttagt gctaaacagc tacgttacac ctatttgcat tgctgacaag
1020

gaatacacga acatcttcct caaatttgga tctggctatg taagtggctg ggcaagagtc
1080

ttccacaaag ggagatcagc tttagttctt cagtacctta gagttccact tgttgaccga
1140

gccacatgtc ttgatctac aaagttcacc atctataaca acatgttctg tgctggcttc
1200

catgaaggag gtagagattc atgtcaagga gatagtgggg gaccccatgt tactgaagtg
1260

gaagggacca gtttcttaac tggaattatt agctgggggtg aagagtgtgc aatgaaaggc
1320

aaatatggaa tatataccaa ggtatcccg tatgtcaact ggattaagga aaaaacaaag
1380

ctcaattaat gaaagatgga tttccaagg taattcattg gaattgaaaa ttaacag
1437

<210> 10
<211> 462
<212> PRT
<213> Homo sapiens

<400> 10
Met Gln Arg Val Asn Met Ile Met Ala Glu Ser Pro Ser Leu Ile Thr
1 5 10 15

Ile Cys Leu Leu Gly Tyr Leu Leu Ser Ala Glu Cys Thr Val Phe Leu
20 25 30

Asp His Glu Asn Ala Asn Lys Ile Leu Asn Arg Pro Lys Arg Tyr Asn

35	40	45
Ser Gly Lys Leu Glu Glu Phe Val Gln Gly Asn Leu Glu Arg Glu Cys 50 55 60		
Met Glu Glu Lys Cys Ser Phe Glu Glu Pro Arg Glu Val Phe Glu Asn 65 70 75 80		
Thr Glu Lys Thr Thr Glu Phe Trp Lys Gln Tyr Val Asp Gly Asp Gln 85 90 95		
Cys Glu Ser Asn Pro Cys Leu Asn Gly Gly Ser Cys Lys Asp Asp Ile 100 105 110		
Asn Ser Tyr Glu Cys Trp Cys Pro Phe Gly Phe Glu Gly Lys Asn Cys 115 120 125		
Glu Leu Asp Val Thr Cys Asn Ile Lys Asn Gly Arg Cys Glu Gln Phe 130 135 140		
Cys Lys Asn Ser Ala Asp Asn Lys Val Val Cys Ser Cys Thr Glu Gly 145 150 155 160		
Tyr Arg Leu Ala Glu Asn Gln Lys Ser Cys Glu Pro Ala Val Pro Phe 165 170 175		
Pro Cys Gly Arg Val Ser Val Ser Gln Thr Ser Lys Leu Thr Arg Ala 180 185 190		
Glu Ala Val Phe Pro Asp Val Asp Tyr Val Asn Pro Thr Glu Ala Glu 195 200 205		
Thr Ile Leu Asp Asn Ile Thr Gln Gly Thr Gln Ser Phe Asn Asp Phe 210 215 220		
Thr Arg Val Val Gly Gly Glu Asp Ala Lys Pro Gly Gln Phe Pro Trp 225 230 235 240		
Gln Val Val Leu Asn Gly Lys Val Asp Ala Phe Cys Gly Gly Ser Ile 245 250 255		
Val Asn Glu Lys Trp Ile Val Thr Ala Ala His Cys Val Glu Thr Gly 260 265 270		
Val Lys Ile Thr Val Val Ala Gly Glu His Asn Ile Glu Glu Thr Glu 275 280 285		
His Thr Glu Gln Lys Arg Asn Val Ile Arg Ala Ile Ile Pro His His 290 295 300		
Asn Tyr Asn Ala Ala Ile Asn Lys Tyr Asn His Asp Ile Ala Leu Leu 305 310 315 320		
Glu Leu Asp Glu Pro Leu Val Leu Asn Ser Tyr Val Thr Pro Ile Cys 325 330 335		
Ile Ala Asp Lys Glu Tyr Thr Asn Ile Phe Leu Lys Phe Gly Ser Gly 340 345 350		
Tyr Val Ser Gly Trp Ala Arg Val Phe His Lys Gly Arg Ser Ala Leu 355 360 365		

Val Leu Gln Tyr Leu Arg^u Val Pro Leu Val Asp Arg Ala Thr Cys Leu
 370 375 380

Arg Ser Thr Lys Phe Thr Ile Tyr Asn Asn Met Phe Cys Ala Gly Phe
 385 390 395 400

His Glu Gly Gly Arg Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro His
 405 410 415

Val Thr Glu Val Glu Gly Thr Ser Phe Leu Thr Gly Ile Ile Ser Trp
 420 425 430

Gly Glu Glu Cys Ala Met Lys Gly Lys Tyr Gly Ile Tyr Thr Lys Val
 435 440 445

Ser Arg Tyr Val Asn Trp Ile Lys Glu Lys Thr Lys Leu Thr
 450 455 460

<210> 11
 <211> 603
 <212> DNA
 <213> Homo sapiens

<400> 11
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gtttctccatt ccgctcctga tgtgcaggat tgcccagaat gcacgctaca ggaaaaccca
 120

ttcttctccc agccgggtgc cccaatactt cagtgcattg gctgctgctt ctctagagca
 180

tatcccactc cactaagggtc caagaagacg atgttggtcc aaaagaacgt cacctcagag
 240

tccacttgct gtgtagctaa atcatataac agggtcacag taatgggggg tttcaaagtg
 300

gagaaccaca cggcgtgccca ctgcagtact tgttattatc acaaatttta aatgttttac
 360

caagtgtgtt cttgatgact gctgattttc tggaatggaa aattaagttg tttagtgttt
 420

atggctttgt gagataaaac tctccttttc cttaccatac cactttgaca cgcttcaagg
 480

atatactgca gctttactgc cttcctcgtt atoctacagt acaatcagca gtctagttct
 540

tttcatttgg aatgaataca gcattaagct tgttccactg caaataaagc cttttaaatc
 600

atc
 603

<210> 12
 <211> 116
 <212> PRT

<213> Homo sapiens

<400> 12

Met Asp Tyr Tyr Arg Lys Tyr Ala Ala Ile Phe Leu Val Thr Leu Ser
1 5 10 15

Val Phe Leu His Val Leu His Ser Ala Pro Asp Val Gln Asp Cys Pro
20 25 30

Glu Cys Thr Leu Gln Glu Asn Pro Phe Phe Ser Gln Pro Gly Ala Pro
35 40 45

Ile Leu Gln Cys Met Gly Cys Cys Phe Ser Arg Ala Tyr Pro Thr Pro
50 55 60

Leu Arg Ser Lys Lys Thr Met Leu Val Gln Lys Asn Val Thr Ser Glu
65 70 75 80

Ser Thr Cys Cys Val Ala Lys Ser Tyr Asn Arg Val Thr Val Met Gly
85 90 95

Gly Phe Lys Val Glu Asn His Thr Ala Cys His Cys Ser Thr Cys Tyr
100 105 110

Tyr His Lys Ser
115

<210> 13

<211> 390

<212> DNA

<213> Homo sapiens

<400> 13

atgaagacac tccagttttt cttccttttc tgttgctgga aagcaatctg ctgcaatagc
60

tgtgagctga ccaacatcac cattgcaata gagaaagaag aatgtcggtt ctgcataagc
120

atcaacacca ctggtgtgc tggctactgc tacaccaggg atctggtgta taaggaccca
180

gccaggccca aaatccagaa aacatgtacc ttcaaggaac tggatatatga aacagtgaga
240

gtgcccggct gtgctcacca tgcagattcc ttgtatacat acccagtggc caccagtgt
300

cactgtggca agtgtgacag cgacagcact gattgtactg tgcgaggcct ggggcccagc
360

tactgtcct ttggtgaaat gaaagaataa
390

<210> 14

<211> 129

<212> PRT

<213> Homo sapiens

<400> 14

Met Lys Thr Leu Gln Phe Phe Phe Leu Phe Cys Cys Trp Lys Ala Ile

1

5

10

15

Cys Cys Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys
20 25 30

Glu Glu Cys Arg Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly
35 40 45

Tyr Cys Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Lys
50 55 60

Ile Gln Lys Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Arg
65 70 75 80

Val Pro Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val
85 90 95

Ala Thr Gln Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys
100 105 110

Thr Val Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys
115 120 125

Glu

<210> 15

<211> 1342

<212> DNA

<213> Homo sapiens

<400> 15

cccggagccg gaccggggcc accgcgcccg ctctgctccg acaccgcgcc ccttgacag
60

ccgccctctc ctccaggccc gtggggctgg cctgcaccg ccgagcttc cgggatgagg
120

gccccgggtg tggtcacccg gcgcgcccc ggtcgctgag ggaccccggc caggcgcgga
180

gatgggggtg caogaatgtc ctgcctggct gtggcttctc ctgtccctgc tgtcgctccc
240

tctgggcctc ccagtcctgg gcgccccacc acgcctcctc tgtgacagcc gagtccctga
300

gaggtacctc ttggaggcca aggaggccga gaatatcacg acgggctgtg ctgaacactg
360

cagcttgaat gagaatatca ctgtcccaga caccaaagtt aatttctatg cctggaagag
420

gatggaggtc gggcagcagg ccgtagaagt ctggcagggc ctggccctgc tgtcggaagc
480

tgtcctgcgg ggccaggccc tgttggtcaa ctcttcccag ccgtgggagc cctgcagct
540

gcatgtggat aaagccgtca gtggccttcg cagcctcacc actctgcttc gggctctgcg
600

agcccagaag gaagccatct cccctccaga tggggcctca gctgctccac tccgaacaat
660

cactgctgac actttccgca aactcttccg agtctactcc aatttcctcc ggggaaagct
720

gaagctgtac acaggggagg cctgcaggac aggggacaga tgaccagggtg tgtccacctg
780

ggcatatcca ccacctccct caccaacatt gcttgtgcca caccctcccc cgccactcct
840

gaaccccgtc gaggggctct cagctcagcg ccagcctgtc ccatggacac tccagtgcc
900

gcaatgacat ctcaggggcc agaggaactg tccagagagc aactctgaga tctaaggatg
960

tcacagggcc aacttgaggg cccagagcag gaagcattca gagagcagct ttaaactcag
1020

ggacagagcc atgctgggaa gacgcctgag ctactcggc accctgcaaa atttgatgcc
1080

aggacacgct ttggaggcga tttacctgtt ttgcaccta ccatcagggg caggatgacc
1140

tggagaactt aggtggcaag ctgtgacttc tccaggtctc acgggcatgg gcactccctt
1200

ggtggcaaga gcccccttga caccggggtg gtgggaacca tgaagacagg atgggggctg
1260

gcctctggct ctcatggggt ccaagttttg tgtattcttc aacctcattg acaagaactg
1320

aaaccaccaa aaaaaaaaaa aa
1342

<210> 16

<211> 193

<212> PRT

<213> Homo sapiens

<400> 16

Met	Gly	Val	His	Glu	Cys	Pro	Ala	Trp	Leu	Trp	Leu	Leu	Leu	Ser	Leu
1				5					10					15	

Leu	Ser	Leu	Pro	Leu	Gly	Leu	Pro	Val	Leu	Gly	Ala	Pro	Pro	Arg	Leu
			20					25						30	

Ile	Cys	Asp	Ser	Arg	Val	Leu	Glu	Arg	Tyr	Leu	Leu	Glu	Ala	Lys	Glu
		35					40					45			

Ala	Glu	Asn	Ile	Thr	Thr	Gly	Cys	Ala	Glu	His	Cys	Ser	Leu	Asn	Glu
		50				55					60				

Asn	Ile	Thr	Val	Pro	Asp	Thr	Lys	Val	Asn	Phe	Tyr	Ala	Trp	Lys	Arg
65					70					75					80

Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu
85 90 95

Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val Asn Ser Ser
100 105 110

Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly
115 120 125

Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Arg Ala Gln Lys Glu
130 135 140

Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile
145 150 155 160

Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu
165 170 175

Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp
180 185 190

Arg

<210> 17
<211> 435
<212> DNA
<213> Homo sapiens

<400> 17
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60

cgctcgccca gcccagcac gcagccctgg gagcatgtga atgccatcca ggaggcccg
120

cgtctcctga acctgagtag agacactgct gctgagatga atgaaacagt agaagtcac
180

tcagaaatgt ttgacctcca ggagccgacc tgctacaga ccgcctgga gctgtacaag
240

cagggcctgc ggggcagcct caccaagctc aagggcccct tgaccatgat ggccagccac
300

tacaagcagc actgccctcc aaccccgga acttctgtg caaccagat tatcaccttt
360

gaaagtttca aagagaacct gaaggacttt ctgcttgtca tcccctttga ctgctgggag
420

ccagtccagg agtga
435

<210> 18
<211> 144
<212> PRT
<213> Homo sapiens

<400> 18
Met Trp Leu Gln Ser Leu Leu Leu Leu Gly Thr Val Ala Cys Ser Ile

1

5

10

15

Ser Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His
20 25 30

Val Asn Ala Ile Gln Glu Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp
35 40 45

Thr Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe
50 55 60

Asp Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg Leu Glu Leu Tyr Lys
65 70 75 80

Gln Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met
85 90 95

Met Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser
100 105 110

Cys Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys
115 120 125

Asp Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu
130 135 140

<210> 19

<211> 501

<212> DNA

<213> Homo sapiens

<400> 19

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tggtactgcc aggaccata tgtaaaagaa gcagaaaacc ttaagaaata ttttaatgca
120

ggtcattcag atgtagcgga taatggaact cttttcttag gcattttgaa gaattggaaa
180

gaggagagtg acagaaaaat aatgcagagc caaattgtct ctttttactt caaacttttt
240

aaaaacttta aagatgacca gagcatccaa aagagtgtgg agaccatcaa ggaagacatg
300

aatgtcaagt ttttcaatag caacaaaaag aaacgagatg acttogaaaa gctgactaat
360

tattcggtaa ctgacttgaa tgtccaacgc aaagcaatac atgaactcat ccaagtgatg
420

gctgaactgt cgccagcagc taaaacaggg aagcgaaaaa ggagtcagat gctgtttcga
480

ggtcgaagag catcccagta a
501

<210> 20

<211> 166

<212> PRT

<213> Homo sapiens

<400> 20

Met Lys Tyr Thr Ser Tyr Ile Leu Ala Phe Gln Leu Cys Ile Val Leu
 1 5 10 15

Gly Ser Leu Gly Cys Tyr Cys Gln Asp Pro Tyr Val Lys Glu Ala Glu
 20 25 30

Asn Leu Lys Lys Tyr Phe Asn Ala Gly His Ser Asp Val Ala Asp Asn
 35 40 45

Gly Thr Leu Phe Leu Gly Ile Leu Lys Asn Trp Lys Glu Glu Ser Asp
 50 55 60

Arg Lys Ile Met Gln Ser Gln Ile Val Ser Phe Tyr Phe Lys Leu Phe
 65 70 75 80

Lys Asn Phe Lys Asp Asp Gln Ser Ile Gln Lys Ser Val Glu Thr Ile
 85 90 95

Lys Glu Asp Met Asn Val Lys Phe Phe Asn Ser Asn Lys Lys Lys Arg
 100 105 110

Asp Asp Phe Glu Lys Leu Thr Asn Tyr Ser Val Thr Asp Leu Asn Val
 115 120 125

Gln Arg Lys Ala Ile His Glu Leu Ile Gln Val Met Ala Glu Leu Ser
 130 135 140

Pro Ala Ala Lys Thr Gly Lys Arg Lys Arg Ser Gln Met Leu Phe Arg
 145 150 155 160

Gly Arg Arg Ala Ser Gln
 165

<210> 21

<211> 1352

<212> DNA

<213> Homo sapiens

<400> 21

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 60

cctgtgctgc ctggctccctg tctccctggc tgaggatccc caggagatg ctgcccagaa
 120

gacagataca tcccaccatg atcaggatca cccaaccttc aacaagatca cccccaacct
 180

ggctgagttc gccttcagcc tataccgcc gctggcacac cagccaaca gcaccaatat
 240

cttctttctcc ccagttagca togtacagc ctttgcaatg ctctccctgg ggaccaaggc
 300

tgacaactcac gatgaaatcc tggagggcct gaatttcaac ctcacggaga ttccggaggc
 360

tcagatccat gaaggcttcc aggaactcct ccgtaccctc aaccagccag acagccagct
420

ccagctgacc accggcaatg gcctgttcct cagcgagggc ctgaagctag tggataagtt
480

tttgaggat gttaaaaagt tgtaccactc agaagccttc actgtcaact tcggggacac
540

cgaagaggcc aagaaacaga tcaacgatta cgtggagaag ggtactcaag ggaaaattgt
600

ggatttggtc aaggagcttg acagagacac agtttttgcct ctggtgaatt acatcttctt
660

taaaggcaaa tgggagagac cctttgaagt caaggacacc gaggaagagg acttccacgt
720

ggaccaggtg accaccgtga aggtgcctat gatgaagcgt ttaggcatgt ttaacatcca
780

gcactgtaag aagctgtcca gctgggtgct gctgatgaaa tacctgggca atgccaccgc
840

catcttcttc ctgcctgatg aggggaaaact acagcactctg gaaaatgaac tcaccacga
900

tatcatcacc aagttcctgg aaaatgaaga cagaaggtct gccagcttac atttaccxaa
960

actgtocatt actggaacct atgatctgaa gagcgtcctg ggtcaactgg gcactactaa
1020

ggtcttcagc aatggggctg acctctccgg ggtcacagag gaggcacccc tgaagctctc
1080

caaggccgtg cataaggctg tgctgaccat cgacgagaaa gggactgaag ctgctggggc
1140

catgttttta gaggccatac ccatgtctat ccccccgag gtcaagttca acaaaccctt
1200

tgtcttctta atgattgaac aaaataccaa gtotccctc ttcattggaa aagtggtgaa
1260

tcacaccaa aaataactgc ctctcgctcc tcaacccctc cctccatcc ctggccccct
1320

ccctggatga cattaaagaa gggttgagct gg
1352

<210> 22
<211> 418
<212> PRT
<213> Homo sapiens

<400> 22
Met Pro Ser Ser Val Ser Trp Gly Ile Leu Leu Leu Ala Gly Leu Cys
1 5 10 15
Cys Leu Val Pro Val Ser Leu Ala Glu Asp Pro Gln Gly Asp Ala Ala

20
 25
 30
 Gln Lys Thr Asp Thr Ser His His Asp Gln Asp His Pro Thr Phe Asn
 35 40 45
 Lys Ile Thr Pro Asn Leu Ala Glu Phe Ala Phe Ser Leu Tyr Arg Gln
 50 55 60
 Leu Ala His Gln Ser Asn Ser Thr Asn Ile Phe Phe Ser Pro Val Ser
 65 70 75 80
 Ile Ala Thr Ala Phe Ala Met Leu Ser Leu Gly Thr Lys Ala Asp Thr
 85 90 95
 His Asp Glu Ile Leu Glu Gly Leu Asn Phe Asn Leu Thr Glu Ile Pro
 100 105 110
 Glu Ala Gln Ile His Glu Gly Phe Gln Glu Leu Leu Arg Thr Leu Asn
 115 120 125
 Gln Pro Asp Ser Gln Leu Gln Leu Thr Thr Gly Asn Gly Leu Phe Leu
 130 135 140
 Ser Glu Gly Leu Lys Leu Val Asp Lys Phe Leu Glu Asp Val Lys Lys
 145 150 155 160
 Leu Tyr His Ser Glu Ala Phe Thr Val Asn Phe Gly Asp Thr Glu Glu
 165 170 175
 Ala Lys Lys Gln Ile Asn Asp Tyr Val Glu Lys Gly Thr Gln Gly Lys
 180 185 190
 Ile Val Asp Leu Val Lys Glu Leu Asp Arg Asp Thr Val Phe Ala Leu
 195 200 205
 Val Asn Tyr Ile Phe Phe Lys Gly Lys Trp Glu Arg Pro Phe Glu Val
 210 215 220
 Lys Asp Thr Glu Glu Glu Asp Phe His Val Asp Gln Val Thr Thr Val
 225 230 235 240
 Lys Val Pro Met Met Lys Arg Leu Gly Met Phe Asn Ile Gln His Cys
 245 250 255
 Lys Lys Leu Ser Ser Trp Val Leu Leu Met Lys Tyr Leu Gly Asn Ala
 260 265 270
 Thr Ala Ile Phe Phe Leu Pro Asp Glu Gly Lys Leu Gln His Leu Glu
 275 280 285
 Asn Glu Leu Thr His Asp Ile Ile Thr Lys Phe Leu Glu Asn Glu Asp
 290 295 300
 Arg Arg Ser Ala Ser Leu His Leu Pro Lys Leu Ser Ile Thr Gly Thr
 305 310 315 320
 Tyr Asp Leu Lys Ser Val Leu Gly Gln Leu Gly Ile Thr Lys Val Phe
 325 330 335
 Ser Asn Gly Ala Asp Leu Ser Gly Val Thr Glu Glu Ala Pro Leu Lys
 340 345 350

Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp Glu Lys Gly
 355 360 365
 Thr Glu Ala Ala Gly Ala Met Phe Leu Glu Ala Ile Pro Met Ser Ile
 370 375 380
 Pro Pro Glu Val Lys Phe Asn Lys Pro Phe Val Phe Leu Met Ile Glu
 385 390 395 400
 Gln Asn Thr Lys Ser Pro Leu Phe Met Gly Lys Val Val Asn Pro Thr
 405 410 415

Gln Lys

<210> 23
 <211> 2004
 <212> DNA
 <213> Homo sapiens

<400> 23
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<210> 24
<211> 536
<212> PRT
<213> Homo sapiens

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35 40 45
Gly Tyr Ser Ser Val Val Cys Val Cys Asn Ala Thr Tyr Cys Asp Ser
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Phe Asp Pro Pro Thr Phe Pro Ala Leu Gly Thr Phe Ser Arg Tyr Glu
65 70 75 80
Ser Thr Arg Ser Gly Arg Arg Met Glu Leu Ser Met Gly Pro Ile Gln
85 90 95
Ala Asn His Thr Gly Thr Gly Leu Leu Leu Thr Leu Gln Pro Glu Gln
100 105 110
Lys Phe Gln Lys Val Lys Gly Phe Gly Gly Ala Met Thr Asp Ala Ala
115 120 125
Ala Leu Asn Ile Leu Ala Leu Ser Pro Pro Ala Gln Asn Leu Leu Leu
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Lys Ser Tyr Phe Ser Glu Glu Gly Ile Gly Tyr Asn Ile Ile Arg Val
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Pro Met Ala Ser Cys Asp Phe Ser Ile Arg Thr Tyr Thr Tyr Ala Asp
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Thr Pro Asp Asp Phe Gln Leu His Asn Phe Ser Leu Pro Glu Glu Asp
180 185 190
Thr Lys Leu Lys Ile Pro Leu Ile His Arg Ala Leu Gln Leu Ala Gln
195 200 205
Arg Pro Val Ser Leu Leu Ala Ser Pro Trp Thr Ser Pro Thr Trp Leu
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Lys Thr Asn Gly Ala Val Asn Gly Lys Gly Ser Leu Lys Gly Gln Pro
225 230 235 240
Gly Asp Ile Tyr His Gln Thr Trp Ala Arg Tyr Phe Val Lys Phe Leu
245 250 255
Asp Ala Tyr Ala Glu His Lys Leu Gln Phe Trp Ala Val Thr Ala Glu
260 265 270
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275 280 285
 Gly Phe Thr Pro Glu His Gln Arg Asp Phe Ile Ala Arg Asp Leu Gly
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 Pro Thr Leu Ala Asn Ser Thr His His Asn Val Arg Leu Leu Met Leu
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 Asp Asp Gln Arg Leu Leu Leu Pro His Trp Ala Lys Val Val Leu Thr
 325 330 335
 Asp Pro Glu Ala Ala Lys Tyr Val His Gly Ile Ala Val His Trp Tyr
 340 345 350
 Leu Asp Phe Leu Ala Pro Ala Lys Ala Thr Leu Gly Glu Thr His Arg
 355 360 365
 Leu Phe Pro Asn Thr Met Leu Phe Ala Ser Glu Ala Cys Val Gly Ser
 370 375 380
 Lys Phe Trp Glu Gln Ser Val Arg Leu Gly Ser Trp Asp Arg Gly Met
 385 390 395 400
 Gln Tyr Ser His Ser Ile Ile Thr Asn Leu Leu Tyr His Val Val Gly
 405 410 415
 Trp Thr Asp Trp Asn Leu Ala Leu Asn Pro Glu Gly Gly Pro Asn Trp
 420 425 430
 Val Arg Asn Phe Val Asp Ser Pro Ile Ile Val Asp Ile Thr Lys Asp
 435 440 445
 Thr Phe Tyr Lys Gln Pro Met Phe Tyr His Leu Gly His Phe Ser Lys
 450 455 460
 Phe Ile Pro Glu Gly Ser Gln Arg Val Gly Leu Val Ala Ser Gln Lys
 465 470 475 480
 Asn Asp Leu Asp Ala Val Ala Leu Met His Pro Asp Gly Ser Ala Val
 485 490 495
 Val Val Val Leu Asn Arg Ser Ser Lys Asp Val Pro Leu Thr Ile Lys
 500 505 510
 Asp Pro Ala Val Gly Phe Leu Glu Thr Ile Ser Pro Gly Tyr Ser Ile
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 His Thr Tyr Leu Trp His Arg Gln
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<210> 25

<211> 1726

<212> DNA

<213> Homo sapiens

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540

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<210> 26
<211> 562
<212> PRT
<213> Homo sapiens

<400> 26
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Gly Ala Arg Ser Tyr Gln Val Ile Cys Arg Asp Glu Lys Thr Gln Met
35 40 45

Ile Tyr Gln Gln His Gln Ser Trp Leu Arg Pro Val Leu Arg Ser Asn
50 55 60

Arg Val Glu Tyr Cys Trp Cys Asn Ser Gly Arg Ala Gln Cys His Ser
65 70 75 80

Val Pro Val Lys Ser Cys Ser Glu Pro Arg Cys Phe Asn Gly Gly Thr
85 90 95

Cys Gln Gln Ala Leu Tyr Phe Ser Asp Phe Val Cys Gln Cys Pro Glu
100 105 110

Gly Phe Ala Gly Lys Cys Cys Glu Ile Asp Thr Arg Ala Thr Cys Tyr
115 120 125

Glu Asp Gln Gly Ile Ser Tyr Arg Gly Thr Trp Ser Thr Ala Glu Ser
130 135 140

Gly Ala Glu Cys Thr Asn Trp Asn Ser Ser Ala Leu Ala Gln Lys Pro
145 150 155 160

Tyr Ser Gly Arg Arg Pro Asp Ala Ile Arg Leu Gly Leu Gly Asn His
165 170 175

Asn Tyr Cys Arg Asn Pro Asp Arg Asp Ser Lys Pro Trp Cys Tyr Val

[illegible]

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Val Tyr Thr Lys Val Thr Asn Tyr Leu Asp Trp Ile Arg Asp Asn Met
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Arg Pro

<210> 27
 <211> 825
 <212> DNA
 <213> Homo sapiens

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<210> 28

<211> 156
 <212> PRT
 <213> Homo sapiens

<400> 28

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Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu
 35 40 45

Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr
 50 55 60

Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys Gln Leu Gln
 65 70 75 80

Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala
 85 90 95

Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile
 100 105 110

Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys
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Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp
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Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr Leu Thr
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<400> 30

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Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val
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Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile
65 70 75 80

Ala Lys Pro Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln
85 90 95

Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser
100 105 110

His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser
115 120 125

Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp
130 135 140

Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu
145 150 155 160

Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser
165 170 175

Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile
180 185 190

Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr

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Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly 210 215 220		
Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp 225 230 235 240		
Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr 245 250 255		
Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val 260 265 270		
Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile 275 280 285		
Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser 290 295 300		
Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met 305 310 315 320		
Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His 325 330 335		
Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro 340 345 350		
Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp 355 360 365		
Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser 370 375 380		
Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr 385 390 395 400		
Trp Val His Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro 405 410 415		
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Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met 435 440 445		
Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu 450 455 460		
Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu 465 470 475 480		
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Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe 515 520 525		

Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp
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Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg
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Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val
 580 585 590

Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu
 595 600 605

Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp
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Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val
 625 630 635 640

Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp
 645 650 655

Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe
 660 665 670

Ser Gly Tyr Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr
 675 680 685

Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro
 690 695 700

Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly
 705 710 715 720

Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp
 725 730 735

Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys
 740 745 750

Asn Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Arg
 755 760 765

Ser Thr Arg Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp
 770 775 780

Ile Glu Lys Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys
 785 790 795 800

Ile Gln Asn Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser
 805 810 815

Pro Thr Pro His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr
 820 825 830

Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn
 835 840 845

Ser Leu Ser Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly
 850 855 860

Asp Met Val Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu
 865 870 875 880

Lys Leu Gly Thr Thr Ala Ala Thr Glu Leu Lys Lys Leu Asp Phe Lys
 885 890 895

Val Ser Ser Thr Ser Asn Asn Leu Ile Ser Thr Ile Pro Ser Asp Asn
 900 905 910

Leu Ala Ala Gly Thr Asp Asn Thr Ser Ser Leu Gly Pro Pro Ser Met
 915 920 925

Pro Val His Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys
 930 935 940

Ser Ser Pro Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu
 945 950 955 960

Asn Asn Asp Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu
 965 970 975

Ser Ser Trp Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe
 980 985 990

Lys Gly Lys Arg Ala His Gly Pro Ala Leu Leu Thr Lys Asp Asn Ala
 995 1000 1005

Leu Phe Lys Val Ser Ile Ser Leu Leu Lys Thr Asn Lys Thr Ser
 1010 1015 1020

Asn Asn Ser Ala Thr Asn Arg Lys Thr His Ile Asp Gly Pro Ser
 1025 1030 1035

Leu Leu Ile Glu Asn Ser Pro Ser Val Trp Gln Asn Ile Leu Glu
 1040 1045 1050

Ser Asp Thr Glu Phe Lys Lys Val Thr Pro Leu Ile His Asp Arg
 1055 1060 1065

Met Leu Met Asp Lys Asn Ala Thr Ala Leu Arg Leu Asn His Met
 1070 1075 1080

Ser Asn Lys Thr Thr Ser Ser Lys Asn Met Glu Met Val Gln Gln
 1085 1090 1095

Lys Lys Glu Gly Pro Ile Pro Pro Asp Ala Gln Asn Pro Asp Met
 1100 1105 1110

Ser Phe Phe Lys Met Leu Phe Leu Pro Glu Ser Ala Arg Trp Ile
 1115 1120 1125

Gln Arg Thr His Gly Lys Asn Ser Leu Asn Ser Gly Gln Gly Pro
 1130 1135 1140

Ser Pro Lys Gln Leu Val Ser Leu Gly Pro Glu Lys Ser Val Glu
 1145 1150 1155

Gly Gln Asn Phe Leu Ser Glu Lys Asn Lys Val Val Val Gly Lys

1160	1165	1170
Gly Glu Phe Thr Lys Asp Val	Gly Leu Lys Glu Met Val Phe Pro	
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Ser Ser Arg Asn Leu Phe Leu	Thr Asn Leu Asp Asn Leu His Glu	
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Asn Asn Thr His Asn Gln Glu	Lys Lys Ile Gln Glu Glu Ile Glu	
1205	1210	1215
Lys Lys Glu Thr Leu Ile Gln	Glu Asn Val Val Leu Pro Gln Ile	
1220	1225	1230
His Thr Val Thr Gly Thr Lys	Asn Phe Met Lys Asn Leu Phe Leu	
1235	1240	1245
Leu Ser Thr Arg Gln Asn Val	Glu Gly Ser Tyr Asp Gly Ala Tyr	
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Ala Pro Val Leu Gln Asp Phe	Arg Ser Leu Asn Asp Ser Thr Asn	
1265	1270	1275
Arg Thr Lys Lys His Thr Ala	His Phe Ser Lys Lys Gly Glu Glu	
1280	1285	1290
Glu Asn Leu Glu Gly Leu Gly	Asn Gln Thr Lys Gln Ile Val Glu	
1295	1300	1305
Lys Tyr Ala Cys Thr Thr Arg	Ile Ser Pro Asn Thr Ser Gln Gln	
1310	1315	1320
Asn Phe Val Thr Gln Arg Ser	Lys Arg Ala Leu Lys Gln Phe Arg	
1325	1330	1335
Leu Pro Leu Glu Glu Thr Glu	Leu Glu Lys Arg Ile Ile Val Asp	
1340	1345	1350
Asp Thr Ser Thr Gln Trp Ser	Lys Asn Met Lys His Leu Thr Pro	
1355	1360	1365
Ser Thr Leu Thr Gln Ile Asp	Tyr Asn Glu Lys Glu Lys Gly Ala	
1370	1375	1380
Ile Thr Gln Ser Pro Leu Ser	Asp Cys Leu Thr Arg Ser His Ser	
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Ile Pro Gln Ala Asn Arg Ser	Pro Leu Pro Ile Ala Lys Val Ser	
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Ser Phe Pro Ser Ile Arg Pro	Ile Tyr Leu Thr Arg Val Leu Phe	
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Gln Asp Asn Ser Ser His Leu	Pro Ala Ala Ser Tyr Arg Lys Lys	
1430	1435	1440
Asp Ser Gly Val Gln Glu Ser	Ser His Phe Leu Gln Gly Ala Lys	
1445	1450	1455
Lys Asn Asn Leu Ser Leu Ala	Ile Leu Thr Leu Glu Met Thr Gly	
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Asp	Gln	Arg	Glu	Val	Gly	Ser	Leu	Gly	Thr	Ser	Ala	Thr	Asn	Ser
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Leu	Pro	Lys	Thr	Ser	Gly	Lys	Val	Glu	Leu	Leu	Pro	Lys	Val	His
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Ile	Tyr	Gln	Lys	Asp	Leu	Phe	Pro	Thr	Glu	Thr	Ser	Asn	Gly	Ser
1520						1525					1530			
Pro	Gly	His	Leu	Asp	Leu	Val	Glu	Gly	Ser	Leu	Leu	Gln	Gly	Thr
1535						1540					1545			
Glu	Gly	Ala	Ile	Lys	Trp	Asn	Glu	Ala	Asn	Arg	Pro	Gly	Lys	Val
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Pro	Phe	Leu	Arg	Val	Ala	Thr	Glu	Ser	Ser	Ala	Lys	Thr	Pro	Ser
1565						1570					1575			
Lys	Leu	Leu	Asp	Pro	Leu	Ala	Trp	Asp	Asn	His	Tyr	Gly	Thr	Gln
1580						1585					1590			
Ile	Pro	Lys	Glu	Glu	Trp	Lys	Ser	Gln	Glu	Lys	Ser	Pro	Glu	Lys
1595						1600					1605			
Thr	Ala	Phe	Lys	Lys	Lys	Asp	Thr	Ile	Leu	Ser	Leu	Asn	Ala	Cys
1610						1615					1620			
Glu	Ser	Asn	His	Ala	Ile	Ala	Ala	Ile	Asn	Glu	Gly	Gln	Asn	Lys
1625						1630					1635			
Pro	Glu	Ile	Glu	Val	Thr	Trp	Ala	Lys	Gln	Gly	Arg	Thr	Glu	Arg
1640						1645					1650			
Leu	Cys	Ser	Gln	Asn	Pro	Pro	Val	Leu	Lys	Arg	His	Gln	Arg	Glu
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Ile	Thr	Arg	Thr	Thr	Leu	Gln	Ser	Asp	Gln	Glu	Glu	Ile	Asp	Tyr
1670						1675					1680			
Asp	Asp	Thr	Ile	Ser	Val	Glu	Met	Lys	Lys	Glu	Asp	Phe	Asp	Ile
1685						1690					1695			
Tyr	Asp	Glu	Asp	Glu	Asn	Gln	Ser	Pro	Arg	Ser	Phe	Gln	Lys	Lys
1700						1705					1710			
Thr	Arg	His	Tyr	Phe	Ile	Ala	Ala	Val	Glu	Arg	Leu	Trp	Asp	Tyr
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Gly	Ser	Val	Pro	Gln	Phe	Lys	Lys	Val	Val	Phe	Gln	Glu	Phe	Thr
1745						1750					1755			
Asp	Gly	Ser	Phe	Thr	Gln	Pro	Leu	Tyr	Arg	Gly	Glu	Leu	Asn	Glu
1760						1765					1770			

His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp 1775 1780 1785
Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser 1790 1795 1800
Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly 1805 1810 1815
Ala Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr 1820 1825 1830
Tyr Phe Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu 1835 1840 1845
Phe Asp Cys Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu 1850 1855 1860
Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His 1865 1870 1875
Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln 1880 1885 1890
Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp 1895 1900 1905
Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn 1910 1915 1920
Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe His 1925 1930 1935
Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met 1940 1945 1950
Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser 1955 1960 1965
Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr 1970 1975 1980
Val Arg Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr 1985 1990 1995
Pro Gly Val Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly 2000 2005 2010
Ile Trp Arg Val Glu Cys Leu Ile Gly Glu His Leu His Ala Gly 2015 2020 2025
Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro 2030 2035 2040
Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala 2045 2050 2055
Ser Gly Gln Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His 2060 2065 2070
Tyr Ser Gly Ser Ile Asn Ala Trp Ser Thr Lys Glu Pro Phe Ser

2075	2080	2085
Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile Ile His Gly Ile 2090 2095 2100		
Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr Ile Ser 2105 2110 2115		
Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp Gln Thr 2120 2125 2130		
Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe Phe Gly Asn 2135 2140 2145		
Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro Pro Ile 2150 2155 2160		
Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser Ile Arg 2165 2170 2175		
Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys 2180 2185 2190		
Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln 2195 2200 2205		
Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser 2210 2215 2220		
Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp 2225 2230 2235		
Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe 2240 2245 2250		
Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys 2255 2260 2265		
Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser 2270 2275 2280		
Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys 2285 2290 2295		
Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val 2300 2305 2310		
Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His 2315 2320 2325		
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180

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660

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720

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Ala Pro Glu Pro Gly Ser Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln
35 40 45
Thr Ala Gln Met Cys Cys Ser Lys Cys Ser Pro Gly Gln His Ala Lys
50 55 60
Val Phe Cys Thr Lys Thr Ser Asp Thr Val Cys Asp Ser Cys Glu Asp
65 70 75 80
Ser Thr Tyr Thr Gln Leu Trp Asn Trp Val Pro Glu Cys Leu Ser Cys
85 90 95
Gly Ser Arg Cys Ser Ser Asp Gln Val Glu Thr Gln Ala Cys Thr Arg
100 105 110
Glu Gln Asn Arg Ile Cys Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu
115 120 125
Ser Lys Gln Glu Gly Cys Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg
130 135 140
Pro Gly Phe Gly Val Ala Arg Pro Gly Thr Glu Thr Ser Asp Val Val
145 150 155 160
Cys Lys Pro Cys Ala Pro Gly Thr Phe Ser Asn Thr Thr Ser Ser Thr
165 170 175
Asp Ile Cys Arg Pro His Gln Ile Cys Asn Val Val Ala Ile Pro Gly
180 185 190
Asn Ala Ser Met Asp Ala Val Cys Thr Ser Thr Ser Pro Thr Arg Ser
195 200 205
Met Ala Pro Gly Ala Val His Leu Pro Gln Pro Val Ser Thr Arg Ser

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Gln His Thr Gln Pro Thr Pro Glu Pro Ser Thr Ala Pro Ser Thr Ser :		
225	230	235 240
Phe Leu Leu Pro Met Gly Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly		
	245	250 255
Asp Phe Ala Leu Pro Val Gly Leu Ile Val Gly Val Thr Ala Leu Gly		
	260	265 270
Leu Leu Ile Ile Gly Val Val Asn Cys Val Ile Met Thr Gln Val Lys		
	275	280 285
Lys Lys Pro Leu Cys Leu Gln Arg Glu Ala Lys Val Pro His Leu Pro		
	290	295 300
Ala Asp Lys Ala Arg Gly Thr Gln Gly Pro Glu Gln Gln His Leu Leu		
	305	310 315 320
Ile Thr Ala Pro Ser Ser Ser Ser Ser Ser Leu Glu Ser Ser Ala Ser		
	325	330 335
Ala Leu Asp Arg Arg Ala Pro Thr Arg Asn Gln Pro Gln Ala Pro Gly		
	340	345 350
Val Glu Ala Ser Gly Ala Gly Glu Ala Arg Ala Ser Thr Gly Ser Ser		
	355	360 365
Asp Ser Ser Pro Gly Gly His Gly Thr Gln Val Asn Val Thr Cys Ile		
	370	375 380
Val Asn Val Cys Ser Ser Ser Asp His Ser Ser Gln Cys Ser Ser Gln		
	385	390 395 400
Ala Ser Ser Thr Met Gly Asp Thr Asp Ser Ser Pro Ser Glu Ser Pro		
	405	410 415
Lys Asp Glu Gln Val Pro Phe Ser Lys Glu Glu Cys Ala Phe Arg Ser		
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Gln Leu Glu Thr Pro Glu Thr Leu Leu Gly Ser Thr Glu Glu Lys Pro		
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<212> DNA

<213> Homo sapiens

<400> 33

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120

tctgtagcga ctccaaaggc agcaatgaac ttcatcaagt tccatogaac tgtgactgtc
180

taaatggagg aacatgtgtg tccaacaagt acttctccaa cattcactgg tgcaactgcc
240

caaagaaatt cggagggcag cactgtgaaa tagataagtc aaaaacctgc tatgagggga
300

atggtcactt ttaccgagga aaggccagca ctgacaccat gggcggccc tgccctgcct
360

ggaactctgc cactgtcctt cagcaaact accatgccca cagatctgat gctcttcagc
420

tgggcctggg gaaacataat tactgcagga acccagacaa ccggagggcga ccttggtgct
480

atgtgcaggc gggcctaaag ccgcttgctc aagagtgcac ggtgcatgac tgcgcagatg
540

gaaaaaagcc ctctctctct ccagaagaat taaaatttca gtgtggccaa aagactctga
600

ggccccgctt taagattatt gggggagaat tcaccaccat cgagaaccag ccttggtttg
660

cggccatcta caggaggcac cgggggggct ctgtcaccta cgtgtgtgga ggcagcctca
720

tcagcccttg ctgggtgatc agcgccacac actgcttcat tgattacca aagaaggagg
780

actacatcgt ctacctgggt cgotcaaggc ttaactccaa cacgcaaggg gagatgaagt
840

ttgaggtgga aaacctcatc ctacacaagg actacagcgc tgacacgctt gctcaccaca
900

acgacattgc cttgctgaag atccgttcca aggagggcag gtgtgcgag ccatcccga
960

ctatacagac catctgcctg cctcgcgatg ataacgatcc ccagtttggc acaagctgtg
1020

agatcactgg ctttggaata gagaattcta ccgactatct ctatccggag cagctgaaga
1080

tgactgttgt gaagctgatt tcccaccggg agtgtcagca gcccactac tacggctctg
1140

aagtcaccac caaatgctg tgtgctgctg acccacagt gaaaacagat tcctgccagg
1200

gagactcagg gggacccctc gtctgttccc tccaaggccg catgactttg actggaattg
1260

tgagctgggg ccgtggatgt gccctgaagg acaagccagg cgtctacacg agagtctcac
1320

acttcttacc ctggatccgc agtcacacca aggaagagaa tggcctggcc ctctgagggg
1380

ccccagggag gaaacgggca ccaccgctt tcttgctggt tgtcattttt gcagtagagt
1440

catctccatc agctgtaaga agagactggg aagat
1475

<210> 34
<211> 431
<212> PRT
<213> Homo sapiens

<400> 34
Met Arg Ala Leu Leu Ala Arg Leu Leu Leu Cys Val Leu Val Val Ser
1 5 10 15
Asp Ser Lys Gly Ser Asn Glu Leu His Gln Val Pro Ser Asn Cys Asp
20 25 30
Cys Leu Asn Gly Gly Thr Cys Val Ser Asn Lys Tyr Phe Ser Asn Ile
35 40 45
His Trp Cys Asn Cys Pro Lys Lys Phe Gly Gly Gln His Cys Glu Ile
50 55 60
Asp Lys Ser Lys Thr Cys Tyr Glu Gly Asn Gly His Phe Tyr Arg Gly
65 70 75 80
Lys Ala Ser Thr Asp Thr Met Gly Arg Pro Cys Leu Pro Trp Asn Ser
85 90 95
Ala Thr Val Leu Gln Gln Thr Tyr His Ala His Arg Ser Asp Ala Leu
100 105 110
Gln Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Asn Arg
115 120 125
Arg Arg Pro Trp Cys Tyr Val Gln Val Gly Leu Lys Pro Leu Val Gln
130 135 140
Glu Cys Met Val His Asp Cys Ala Asp Gly Lys Lys Pro Ser Ser Pro
145 150 155 160
Pro Glu Glu Leu Lys Phe Gln Cys Gly Gln Lys Thr Leu Arg Pro Arg
165 170 175
Phe Lys Ile Ile Gly Gly Glu Phe Thr Thr Ile Glu Asn Gln Pro Trp
180 185 190
Phe Ala Ala Ile Tyr Arg Arg His Arg Gly Gly Ser Val Thr Tyr Val
195 200 205
Cys Gly Gly Ser Leu Ile Ser Pro Cys Trp Val Ile Ser Ala Thr His
210 215 220
Cys Phe Ile Asp Tyr Pro Lys Lys Glu Asp Tyr Ile Val Tyr Leu Gly
225 230 235 240
Arg Ser Arg Leu Asn Ser Asn Thr Gln Gly Glu Met Lys Phe Glu Val
245 250 255
Glu Asn Leu Ile Leu His Lys Asp Tyr Ser Ala Asp Thr Leu Ala His

260 265 270
 His Asn Asp Ile Ala Leu Leu Lys Ile Arg Ser Lys Glu Gly Arg Cys
 275 280 285
 Ala Gln Pro Ser Arg Thr Ile Gln Thr Ile Cys Leu Pro Ser Met Tyr
 290 295 300
 Asn Asp Pro Gln Phe Gly Thr Ser Cys Glu Ile Thr Gly Phe Gly Lys
 305 310 315 320
 Glu Asn Ser Thr Asp Tyr Leu Tyr Pro Glu Gln Leu Lys Met Thr Val
 325 330 335
 Val Lys Leu Ile Ser His Arg Glu Cys Gln Gln Pro His Tyr Tyr Gly
 340 345 350
 Ser Glu Val Thr Thr Lys Met Leu Cys Ala Ala Asp Pro Gln Trp Lys
 355 360 365
 Thr Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Ser Leu
 370 375 380
 Gln Gly Arg Met Thr Leu Thr Gly Ile Val Ser Trp Gly Arg Gly Cys
 385 390 395 400
 Ala Leu Lys Asp Lys Pro Gly Val Tyr Thr Arg Val Ser His Phe Leu
 405 410 415
 Pro Trp Ile Arg Ser His Thr Lys Glu Glu Asn Gly Leu Ala Leu
 420 425 430

 <210> 35
 <211> 107
 <212> PRT
 <213> Mus musculus

 <400> 35
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asp Val Asn Thr Ala
 20 25 30
 Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ser Ala Ser Phe Leu Tyr Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Arg Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr Thr Thr Pro Pro
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 36
 <211> 120

<212> PRT

<213> Mus musculus

<400> 36

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Arg Ile Tyr Pro Thr Asn Gly Tyr Thr Arg Tyr Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys Asn Thr Ala Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ser Arg Trp Gly Gly Asp Gly Phe Tyr Ala Met Asp Tyr Trp Gly Gln
 100 105 110

Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 37

<211> 120

<212> PRT

<213> Mus musculus

<400> 37

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln
 1 5 10 15

Thr Leu Thr Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser
 20 25 30

Gly Met Ser Val Gly Trp Ile Arg Gln Pro Ser Gly Lys Ala Leu Glu
 35 40 45

Trp Leu Ala Asp Ile Trp Trp Asp Asp Lys Lys Asp Tyr Asn Pro Ser
 50 55 60

Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Lys Asn Gln Val
 65 70 75 80

Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr Tyr Tyr
 85 90 95

Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala
 100 105 110

Gly Thr Thr Val Thr Val Ser Ser
 115 120

<210> 38

<211> 106

<212> PRT

<213> Mus musculus

<400> 38

Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Lys Cys Gln Leu Ser Val Gly Tyr Met
 20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr
 35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Asp
 65 70 75 80

Asp Phe Ala Thr Tyr Tyr Cys Phe Gln Gly Ser Gly Tyr Pro Phe Thr
 85 90 95

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 39

<211> 1039

<212> DNA

<213> Homo sapiens

<400> 39

tcctgcacag gcagtgcctt gaagtgcctc ttcagagacc tttcttcata gactactttt
 60

ttttctttaa gcagcaaaag gagaaaattg tcatcaaagg atattccaga ttcttgacag
 120

cattctcgtc atctctgagg^{*}acatcacat catotcagga tgaggggcat gaagctgctg
 180

ggggcgctgc tggcactggc ggccctactg cagggggcog tgtccctgaa gatcgcagcc
 240

ttcaacatcc agacatttgg ggagaccaag atgtccaatg ccaccctcgt cagctacatt
 300

gtgcagatcc tgagccgcta tgacatcgcc ctggtccagg aggtcagaga cagccacctg
 360

actgccgtgg ggaagctgct ggacaacctc aatcaggatg caccagacac ctatcactac
 420

gtggtcagtg agccactggg acggaacagc tataaggagc gctacctgtt cgtgtacagg
 480

cctgaccagg tgtctgoggt ggacagctac tactacgatg atggctgcga gccctgcggg
 540

aacgacacct tcaaccgaga gccagccatt gtcaggttct tctcccggtt cacagaggto
 600

agggagtgtg ccattgttcc cctgcatgcg gccccggggg acgcagtagc cgagatcgac
660

gctctctatg acgtctacct ggatgtccaa gagaaatggg gcttggagga cgtcatgttg
720

atgggcgact tcaatgcggg ctgcagctat gtgagaccct cccagtgggc atccatccgc
780

ctgtggacaa gccccacctt ccagtggctg atccccgaca gcgctgacac cacagctaca
840

cccacgcact gtgcctatga caggatcgtg gttgcaggga tgctgctccg aggcgccgtt
900

gttcccgact cggctcttcc ctttaacttc caggctgcct atggcctgag tgaccaactg
960

gcccagcca tcagtgacca ctatccagtg gaggtgatgc tgaagtgagc agccccctccc
1020

cacaccagtt gaactgcag
1039

<210> 40
<211> 282
<212> PRT
<213> Homo sapiens

<400> 40

Met Arg Gly Met Lys Leu Leu Gly Ala Leu Leu Ala Leu Ala Ala Leu
1 5 10 15

Leu Gln Gly Ala Val Ser Leu Lys Ile Ala Ala Phe Asn Ile Gln Thr
20 25 30

Phe Gly Glu Thr Lys Met Ser Asn Ala Thr Leu Val Ser Tyr Ile Val
35 40 45

Gln Ile Leu Ser Arg Tyr Asp Ile Ala Leu Val Gln Glu Val Arg Asp
50 55 60

Ser His Leu Thr Ala Val Gly Lys Leu Leu Asp Asn Leu Asn Gln Asp
65 70 75 80

Ala Pro Asp Thr Tyr His Tyr Val Val Ser Glu Pro Leu Gly Arg Asn
85 90 95

Ser Tyr Lys Glu Arg Tyr Leu Phe Val Tyr Arg Pro Asp Gln Val Ser
100 105 110

Ala Val Asp Ser Tyr Tyr Tyr Asp Asp Gly Cys Glu Pro Cys Gly Asn
115 120 125

Asp Thr Phe Asn Arg Glu Pro Ala Ile Val Arg Phe Phe Ser Arg Phe
130 135 140

Thr Glu Val Arg Glu Phe Ala Ile Val Pro Leu His Ala Ala Pro Gly
145 150 155 160

Asp Ala Val Ala Glu Ile Asp Ala Leu Tyr Asp Val Tyr Leu Asp Val

165

170

175

Gln Glu Lys Trp Gly Leu Glu Asp Val Met Leu Met Gly Asp Phe Asn
 180 185 190

Ala Gly Cys Ser Tyr Val Arg Pro Ser Gln Trp Ser Ser Ile Arg Leu
 195 200 205

Trp Thr Ser Pro Thr Phe Gln Trp Leu Ile Pro Asp Ser Ala Asp Thr
 210 215 220

Thr Ala Thr Pro Thr His Cys Ala Tyr Asp Arg Ile Val Val Ala Gly
 225 230 235 240

Met Leu Leu Arg Gly Ala Val Val Pro Asp Ser Ala Leu Pro Phe Asn
 245 250 255

Phe Gln Ala Ala Tyr Gly Leu Ser Asp Gln Leu Ala Gln Ala Ile Ser
 260 265 270

Asp His Tyr Pro Val Glu Val Met Leu Lys
 275 280

<210> 41
 <211> 678
 <212> DNA
 <213> Mus musculus

<400> 41
 gacatcttgc tgactcagtc tccagccatc ctgtctgtga gtccaggaga aagagtcagt
 60

ttctcctgca gggccagtca gttcgttggc tcaagcatcc actggtatca gcaaagaaca
 120

aatggttctc caaggcttct cataaagtat gcttctgagt ctatgtctgg gatcccttcc
 180

aggtttagtg gcagtggtac agggacagat ttactotta gcatcaaac tgtggagtct
 240

gaagatattg cagattatta ctgtcaacaa agtcatagct ggccattcac gttcggctcg
 300

gggacaaatt tggaagtaaa agaagtgaag cttgaggagt ctggaggagg cttggtgcaa
 360

cctggaggat ccatgaaact ctctgtgtt gcctctggat tcattttcag taaccactgg
 420

atgaactggg tccgccagtc tccagagaag gggcttgagt gggttgctga aattagatca
 480

aaatctatta attctgcaac acattatgcg gagtctgtga aaggagggtt caccatctca
 540

agagatgatt ccaaaagtgc tgtctacctg caaatgaccg acttaagaac tgaagacact
 600

ggcgtttatt actgttccag gaattactac ggtagtacct acgactactg gggccaaggg
 660

accactctca cagtctcc
678

<210> 42
<211> 226
<212> PRT
<213> Mus musculus

<400> 42
Asp Ile Leu Leu Thr Gln Ser Pro Ala Ile Leu Ser Val Ser Pro Gly
1 5 10 15
Glu Arg Val Ser Phe Ser Cys Arg Ala Ser Gln Phe Val Gly Ser Ser
20 25 30
Ile His Trp Tyr Gln Gln Arg Thr Asn Gly Ser Pro Arg Leu Leu Ile
35 40 45
Lys Tyr Ala Ser Glu Ser Met Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Thr Val Glu Ser
65 70 75 80
Glu Asp Ile Ala Asp Tyr Tyr Cys Gln Gln Ser His Ser Trp Pro Phe
85 90 95
Thr Phe Gly Ser Gly Thr Asn Leu Glu Val Lys Glu Val Lys Leu Glu
100 105 110
Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Met Lys Leu Ser
115 120 125
Cys Val Ala Ser Gly Phe Ile Phe Ser Asn His Trp Met Asn Trp Val
130 135 140
Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val Ala Glu Ile Arg Ser
145 150 155 160
Lys Ser Ile Asn Ser Ala Thr His Tyr Ala Glu Ser Val Lys Gly Arg
165 170 175
Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ala Val Tyr Leu Gln Met
180 185 190
Thr Asp Leu Arg Thr Glu Asp Thr Gly Val Tyr Tyr Cys Ser Arg Asn
195 200 205
Tyr Tyr Gly Ser Thr Tyr Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr
210 215 220

Val Ser
225

<210> 43
<211> 450
<212> DNA
<213> Homo sapiens

<400> 43

gctgcatcag aagaggccat caagcacatc actgtccttc tgccatggcc ctgtggatgc
60

gcctcctgcc cctgtctggcg ctgtctggccc tctggggacc tgaccacagcc gcagcctttg
120

tgaaccaaca cctgtgcggc tcacacctgg tggaagctct ctacctagtg tgcggggaaac
180

gaggtcttctt ctacacaccc aagaccogcc gggaggcaga ggacctgcag gtggggcagg
240

tggagctggg cggggggccct ggtgcaggca gcctgcagcc cttggccctg gaggggtccc
300

tgcagaagcg tggcattgtg gaacaatgct gtaccagcat ctgtccctc taccagctgg
360

agaactactg caactagacg cagcccgagc gcagcccccc acccgccgcc tcttgcaccg
420

agagagatgg aataaagccc ttgaaccagc
450

<210> 44
<211> 110
<212> PRT
<213> Homo sapiens

<400> 44
Met Ala Leu Trp Met Arg Leu Leu Pro Leu Leu Ala Leu Leu Ala Leu
1 5 10 15
Trp Gly Pro Asp Pro Ala Ala Ala Phe Val Asn Gln His Leu Cys Gly
20 25 30
Ser His Leu Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe
35 40 45
Phe Tyr Thr Pro Lys Thr Arg Arg Glu Ala Glu Asp Leu Gln Val Gly
50 55 60
Gln Val Glu Leu Gly Gly Gly Pro Gly Ala Gly Ser Leu Gln Pro Leu
65 70 75 80
Ala Leu Glu Gly Ser Leu Gln Lys Arg Gly Ile Val Glu Gln Cys Cys
85 90 95
Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn
100 105 110

<210> 45
<211> 1203
<212> DNA
<213> Hepatitis B virus

<400> 45
atgggaggtt ggtottocaa acctcgacaa ggcattggga cgaatctttc tgttcccaat
60

cctctgggat tctttccoga tcaccagttg gaccctgcgt tcggagccaa ctcaaacaa
120

ccagattggg acttcaaccc caacaaggat cactggccag aggcaatcaa ggtaggagcg
180

ggagacttcg ggccagggtt caccacacca cagggcggtc ttttggggtg gagccctcag
240

gctcagggca tattgacaac agtgccagca ggcctcctc ctgtttccac caatcggcag
300

tcaggaagac agcctactcc catctctcca cctctaagag acagtcatcc tcaggccatg
360

cagtggaaact ccacaacatt ccaccaagct ctgctagatc ccagagttag gggcctatat
420

tttctgctg gtggctccag ttccggaaca gtaaaccctg ttccgactac tgtctcacc
480

atatogtcaa tcttctcgag gactggggac cctgcaccga acatggagag cacaacatca
540

ggattcctag gaccctgct cgtgttacag gcggggtttt tcttggtgac aagaatctc
600

acaataccac agagtctaga ctggtggtg acttctctca atttcttagg gggagcacc
660

acgtgtcctg gccaaaattc gcagtccca acctccaatc actcaccaac ctcttgctc
720

ccaatttgc ctggttatcg ctggatgtgt ctggggcgtt ttatcatatt cctcttcac
780

ctgctgctat gctcatctt cttgttggtt cttctggact accaaggat gtgcccgtt
840

tgtcctctac ttccaggaac atcaactacc agcacgggac catgcaagac ctgcacgatt
900

cctgctcaag gaacctctat gtttcctct tgttgctgta caaaccttc ggacggaaac
960

tgcacttgta ttcccatccc atcatcctgg gctttcgcaa gattcctatg ggagtgggcc
1020

tcagtccgtt tctcctggct cagtttacta gtgccatttg ttcagtgggt cgcagggtt
1080

tccccactg tttggctttc agttatatgg atgatgtggt attgggggcc aagtctgtac
1140

aacatcttga gtcccttttt acctctatta ccaattttct tttgtctttg ggtatacatt
1200

tga
1203

<210> 46

<211> 400
 <212> PRT
 <213> Hepatitis B virus

<400> 46

Met Gly Gly Trp Ser Ser Lys Pro Arg Gln Gly Met Gly Thr Asn Leu
 1 5 10 15

Ser Val Pro Asn Pro Leu Gly Phe Phe Pro Asp His Gln Leu Asp Pro
 20 25 30

Ala Phe Gly Ala Asn Ser Asn Asn Pro Asp Trp Asp Phe Asn Pro Asn
 35 40 45

Lys Asp His Trp Pro Glu Ala Ile Lys Val Gly Ala Gly Asp Phe Gly
 50 55 60

Pro Gly Phe Thr Pro Pro His Gly Gly Leu Leu Gly Trp Ser Pro Gln
 65 70 75 80

Ala Gln Gly Ile Leu Thr Thr Val Pro Ala Ala Pro Pro Pro Val Ser
 85 90 95

Thr Asn Arg Gln Ser Gly Arg Gln Pro Thr Pro Ile Ser Pro Pro Leu
 100 105 110

Arg Asp Ser His Pro Gln Ala Met Gln Trp Asn Ser Thr Thr Phe His
 115 120 125

Gln Ala Leu Leu Asp Pro Arg Val Arg Gly Leu Tyr Phe Pro Ala Gly
 130 135 140

Gly Ser Ser Ser Gly Thr Val Asn Pro Val Pro Thr Thr Val Ser Pro
 145 150 155 160

Ile Ser Ser Ile Phe Ser Arg Thr Gly Asp Pro Ala Pro Asn Met Glu
 165 170 175

Ser Thr Thr Ser Gly Phe Leu Gly Pro Leu Leu Val Leu Gln Ala Gly
 180 185 190

Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp Ser
 195 200 205

Trp Trp Thr Ser Leu Asn Phe Leu Gly Gly Ala Pro Thr Cys Pro Gly
 210 215 220

Gln Asn Ser Gln Ser Pro Thr Ser Asn His Ser Pro Thr Ser Cys Pro
 225 230 235 240

Pro Ile Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile Ile
 245 250 255

Phe Leu Phe Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu Val Leu Leu
 260 265 270

Asp Tyr Gln Gly Met Leu Pro Val Cys Pro Leu Leu Pro Gly Thr Ser
 275 280 285

Thr Thr Ser Thr Gly Pro Cys Lys Thr Cys Thr Ile Pro Ala Gln Gly
 290 295 300

Thr Ser Met Phe Pro Ser Cys Cys Cys Thr Lys Pro Ser Asp Gly Asn
305 310 315 320

Cys Thr Cys Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Arg Phe Leu
325 330 335

Trp Glu Trp Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro
340 345 350

Phe Val Gln Trp Phe Ala Gly Leu Ser Pro Thr Val Trp Leu Ser Val
355 360 365

Ile Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Asn Ile Leu Ser
370 375 380

Pro Phe Leu Pro Leu Leu Pro Ile Phe Phe Cys Leu Trp Val Tyr Ile
385 390 395 400

<210> 47
<211> 799
<212> DNA
<213> Homo sapiens

<400> 47
cgaaccactc agggctcctgt ggacagctca cctagctgca atggctacag gctcccggac
60

gtccctgctc ctggcttttg gctgctctg cctgccctgg cttcaagagg gcagtgcctt
120

cccaaccatt cccttatcca ggccttttga caacgctatg ctccggcgccc atcgtctgca
180

ccagctggcc tttagacacct accaggagtt tgaagaagcc tatatcccaa aggaacagaa
240

gtattcattc ctgcagaacc cccagacctc cctctgtttc tcagagtcta ttccgacacc
300

ctccaacagg gaggaaacac aacagaaatc caacctagag ctgctccgca tctccctgct
360

gctcatccag tctgtggctgg agcccgtgca gttcctcagg agtgtcttcg ccaacagcct
420

ggtgtacggc gctctgaca gcaacgtcta tgacctccta aaggacctag aggaaggcat
480

ccaaacgctg atggggaggc tggaagatgg cagcccccg actgggcaga tcttcaagca
540

gacctacagc aagttcgaca caaactcaca caacgatgac gcactactca agaactacgg
600

gctgctctac tgcttcagga aggacatgga caaggctgag acattcctgc gcctogtgca
660

gtgccgtctt gtggagggca gctgtggctt ctagctgcc gggtggcatc cctgtgaccc
720

ctccccagtg cctctcctgg ccttggaagt tgccactcca gtgcccacca gccctgtcct
780

aataaaatta agttgcac
799

<210> 48
<211> 217
<212> PRT
<213> Homo sapiens

<400> 48
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu
1 5 10 15
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Leu
20 25 30
Ser Arg Pro Phe Asp Asn Ala Met Leu Arg Ala His Arg Leu His Gln
35 40 45
Leu Ala Phe Asp Thr Tyr Gln Glu Phe Glu Glu Ala Tyr Ile Pro Lys
50 55 60
Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro Gln Thr Ser Leu Cys Phe
65 70 75 80
Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr Gln Gln Lys
85 90 95
Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp
100 105 110
Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser Leu Val
115 120 125
Tyr Gly Ala Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu
130 135 140
Glu Gly Ile Gln Thr Leu Met Gly Arg Leu Glu Asp Gly Ser Pro Arg
145 150 155 160
Thr Gly Gln Ile Phe Lys Gln Thr Tyr Ser Lys Phe Asp Thr Asn Ser
165 170 175
His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly Leu Leu Tyr Cys Phe
180 185 190
Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile Val Gln Cys
195 200 205
Arg Ser Val Glu Gly Ser Cys Gly Phe
210 215

<210> 49
<211> 963
<212> DNA
<213> Homo sapiens

<400> 49

atggagacag acacactcct gttatgggtg ctgctgctct gggttccagg ttccactggc
60

gacgtcaggc gagggccccg gagcctgcgg ggcagggacg cgccagcccc cacgccctgc
120

gtcccgccg agtgcttoga cctgctggtc cgccactgcg tggcctgcgg gctcctgcg
180

acgccgcggc cgaaaccggc cggggccagc agccctgcg cccaggacggc gctgcagccg
240

caggagtgg tgggcgcggg ggccggcgag gcggcggtcg acaaaactca cacatgccca
300

ccgtgccag cacctgaact cctgggggga ccgtcagtct tcctcttccc cccaaaaccc
360

aaggacacc tcatgatctc ccggaccct gaggtcacat gcgtgggtgt ggacgtgagc
420

caogaagacc ctgaggtcaa gttcaactgg tacgtggacg gcgtggaggt gcataatgcc
480

aagacaaagc cgcgggagga gcagtacaac agcacgtacc gtgtggtcag cgtcctcacc
540

gtcctgcacc aggactggct gaatggcaag gagtacaagt gcaaggctct caacaaagcc
600

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660

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 Leu Val Arg His Cys Val Ala Cys Gly Leu Leu Arg Thr Pro Arg Pro
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 Lys Pro Ala Gly Ala Ser Ser Pro Ala Pro Arg Thr Ala Leu Gln Pro
 65 70 75 80
 Gln Glu Ser Val Gly Ala Gly Ala Gly Glu Ala Ala Val Asp Lys Thr
 85 90 95
 His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
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 Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
 115 120 125
 Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
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 Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
 145 150 155 160
 Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
 165 170 175
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 180 185 190
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 195 200 205
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
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 Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
 225 230 235 240
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 245 250 255
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 260 265 270
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
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Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
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Tyr Tyr Thr Ser Thr Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
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Asp Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
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Thr Phe Gly Gln Gly Thr Lys Val Glu Val Lys
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<210> 52

<211> 107

<212> PRT

<213> Mus musculus

<400> 52

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Leu Asn Trp Tyr Gln Gln Lys Pro Asp Gly Ile Val Lys Leu Leu Ile
 35 40 45

Tyr Tyr Thr Ser Thr Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Tyr Ser Leu Thr Ile Ser Asn Leu Glu Gln
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Glu Asp Ile Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
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Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
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<211> 119

<212> PRT

<213> Homo sapiens

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Leu Ile Glu Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45

Gly Val Ile Tyr Pro Gly Ser Gly Gly Thr Asn Tyr Asn Glu Lys Phe
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Lys Gly Arg Val Thr Leu Thr Val Asp Glu Ser Thr Asn Thr Ala Tyr
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Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys
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Ala Arg Arg Asp Gly Asn Tyr Gly Trp Phe Ala Tyr Trp Gly Gln Gly
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Thr Leu Val Thr Val Ser Ser
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Leu Ile Glu Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45

Gly Val Ile Tyr Pro Gly Ser Gly Gly Thr Asn Tyr Asn Glu Lys Phe
 50 55 60

Lys Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Thr Thr Ala Tyr
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Asp Asp Ser Ala Val Tyr Phe Cys
 85 90 95

Ala Arg Arg Asp Gly Asn Tyr Gly Trp Phe Ala Tyr Trp Gly Arg Gly
 100 105 110

Thr Leu Val Thr Val Ser Ala
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 <211> 214
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Asp Arg Val Thr Ile Ser Cys Arg Ala Ser Gln Asp Ile Asn Asn Tyr
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Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile

35

40

45

Tyr Tyr Thr Ser Thr Leu His Ser Gly Val Pro Ser Arg Phe Ser Gly
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Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln Pro
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Asp Asp Phe Ala Thr Tyr Phe Cys Gln Gln Gly Asn Thr Leu Pro Trp
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Val Lys Arg Thr Val Ala Ala
100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
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Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
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<210> 56
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<213> Homo sapiens

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35 40 45

Gly Val Ile Tyr Pro Gly Ser Gly Gly Thr Asn Tyr Asn Glu Lys Phe
50 55 60

Lys Gly Arg Val Thr Leu Thr Val Asp Glu Ser Thr Asn Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys
85 90 95

Ala Arg Arg Asp Gly Asn Tyr Gly Trp Phe Ala Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe
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 130 135 140
 Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp
 145 150 155 160
 Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
 180 185 190
 Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro
 195 200 205
 Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys
 210 215 220
 Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro
 225 230 235 240
 Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 245 250 255
 Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 260 265 270
 Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 275 280 285
 Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
 290 295 300
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 305 310 315 320
 Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
 325 330 335
 Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 340 345 350
 Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr
 355 360 365
 Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 370 375 380
 Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 385 390 395 400
 Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 405 410 415
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35 40 45

Met Asn Pro Met Cys Ile Tyr Arg Ser Pro Glu Lys Lys Ala Thr Glu
50 55 60

Asp Glu Gly Ser Glu Gln Lys Ile Pro Glu Ala Thr Asn Arg Arg Val
65 70 75 80

Trp Glu Leu Ser Lys Ala Asn Ser Arg Phe Ala Thr Thr Phe Tyr Gln
85 90 95

His Leu Ala Asp Ser Lys Asn Asp Asn Asp Asn Ile Phe Leu Ser Pro
100 105 110

Leu Ser Ile Ser Thr Ala Phe Ala Met Thr Lys Leu Gly Ala Cys Asn
115 120 125

Asp Thr Leu Gln Gln Leu Met Glu Val Phe Lys Phe Asp Thr Ile Ser
130 135 140

Glu Lys Thr Ser Asp Gln Ile His Phe Phe Phe Ala Lys Leu Asn Cys
145 150 155 160

Arg Leu Tyr Arg Lys Ala Asn Lys Ser Ser Lys Leu Val Ser Ala Asn
165 170 175

Arg Leu Phe Gly Asp Lys Ser Leu Thr Phe Asn Glu Thr Tyr Gln Asp
180 185 190

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Ile Ser Glu Leu Val Tyr Gly Ala Lys Leu Gln Pro Leu Asp Phe Lys
    195                                200                                205

Glu Asn Ala Glu Gln Ser Arg Ala Ala Ile Asn Lys Trp Val Ser Asn
    210                                215                                220

Lys Thr Glu Gly Arg Ile Thr Asp Val Ile Pro Ser Glu Ala Ile Asn
    225                                230                                235                                240

Glu Leu Thr Val Leu Val Leu Val Asn Thr Ile Tyr Phe Lys Gly Leu
    245                                250                                255

Trp Lys Ser Lys Phe Ser Pro Glu Asn Thr Arg Lys Glu Leu Phe Tyr
    260                                265                                270

Lys Ala Asp Gly Glu Ser Cys Ser Ala Ser Met Met Tyr Gln Glu Gly
    275                                280                                285

Lys Phe Arg Tyr Arg Arg Val Ala Glu Gly Thr Gln Val Leu Glu Leu
    290                                295                                300

Pro Phe Lys Gly Asp Asp Ile Thr Met Val Leu Ile Leu Pro Lys Pro
    305                                310                                315                                320

Glu Lys Ser Leu Ala Lys Val Glu Lys Glu Leu Thr Pro Glu Val Leu
    325                                330                                335

Gln Glu Trp Leu Asp Glu Leu Glu Glu Met Met Leu Val Val His Met
    340                                345                                350

Pro Arg Phe Arg Ile Glu Asp Gly Phe Ser Leu Lys Glu Gln Leu Gln
    355                                360                                365

Asp Met Gly Leu Val Asp Leu Phe Ser Pro Glu Lys Ser Lys Leu Pro
    370                                375                                380

Gly Ile Val Ala Glu Gly Arg Asp Asp Leu Tyr Val Ser Asp Ala Phe
    385                                390                                395                                400

His Lys Ala Phe Leu Glu Val Asn Glu Glu Gly Ser Glu Ala Ala Ala
    405                                410                                415

Ser Thr Ala Val Val Ile Ala Gly Arg Ser Leu Asn Pro Asn Arg Val
    420                                425                                430

Thr Phe Lys Ala Asn Arg Pro Phe Leu Val Phe Ile Arg Glu Val Pro
    435                                440                                445

Leu Asn Thr Ile Ile Phe Met Gly Arg Val Ala Asn Pro Cys Val Lys
    450                                455                                460

<210> 65
<211> 1962
<212> DNA
<213> Homo sapiens

<400> 65
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60

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cccccggtgg ccccggcga gccccgcac ctggtgcagg tggacgcggc ccgcgcgtg
120

tggcccctgc ggcgttctg gaggagcaca ggcttctgcc ccccgctgcc acacagccag
180

gctgaccagt acgtcctcag ctgggaccag cagctcaacc tcgcctatgt ggggcgcgtc
240

cctcaccgog gcatcaagca ggtccggacc cactggctgc tggagcttgt caccaccagg
300

gggtccactg gacggggcct gagctacaac ttcaccacc tggacgggta cttggacctt
360

ctcagggaga accagctcct ccaggggttt gagctgatgg gcagcgcctc gggccacttc
420

actgactttg aggacaagca gcaggtgttt gagtgggaagg acttgggtctc cagcctggcc
480

aggagataca tcggtaggta cggactggcg catgtttoca agtggaactt cgagacgtgg
540

aatgagccag accaccacga ctttgacaac gtctccatga ccatgcaagg cttcctgaac
600

tactacgatg cctgctcgga gggctctgcg gcgcgcagcc ccgccctgcg gctgggaggg
660

ccggcgact ccttccacac cccaccgga tccccgctga gctggggcct cctgcgcac
720

tgccacgacg gtaccaactt cttoactggg gaggcgggcg tgcggctgga ctacatctcc
780

ctccacagga agggtgogcg cagctccatc tccatcctgg agcaggagaa ggtcgtcgcg
840

cagcagatcc ggcagctott cccaagttc gcggacacc ccatttaca cgacgagggc
900

gacccgctgg tgggctggtc cctgccacag ccgtggaggg cggacgtgac ctacgcggcc
960

atggtggtga aggtcatgc gcagcatcag aacctgctac tggccaacac cacctccgcc
1020

ttccctacg cgtcctgag caacgacaat gccttctga gctaccacc gcaccccttc
1080

gogcagcgca cgctcaccgc gcgcttcag gtcaacaaca cccgcccgc gcacgtgcag
1140

ctgttgcgca agccgtgct cacggccatg gggctgctgg cgctgctgga tgaggagcag
1200

ctctgggccc aagtgtcgca ggccgggacc gtctggaca gcaaccacac ggtgggcgtc
1260

ctggccagcg cccaccgccc ccagggcccg gccgacgcct ggcgcgccgc ggtgctgac
1320

tacgcgagcg acgacacccg cgccacccc aaccgcagcg tcgcggtgac cctgcggctg
1380

cgcggggtgc cccccggccc gggcctggtc tacgtcacgc gctacctgga caacgggctc
1440

tgcagccccg acggcgagtg gcggcgctg ggccggcccg tcttccccac.ggcagagcag
1500

ttccggcgca tgcgcgcggc tgaggaccg gtggccgagg cgccccgccc cttaaccgccc
1560

ggcgggccgc tgacctgcg ccccgcgctg cggctgccgt cgcttttgcg ggtgcacgtg
1620

tgtgcgcgcc ccgagaagcc gcccgggcag gtcacgcggc tcgcgcacct gccctgacc
1680

caagggcagc tggttctggt ctggctggat gaacacgtgg gctccaagt cctgtggaca
1740

tacgagatcc agttctctca ggacggtaag ggtacacccc cggtcagcag gaagccatcg
1800

accttcaacc tctttgtgtt cagcccagac acaggtgctg totctggctc ctaccgagtt
1860

cgagccctgg actactgggc ccgaccaggc cccttctcgg accctgtgcc gtacctggag
1920

gtccctgtgc caagagggcc cccatccccg ggcaatccat ga
1962

<210> 66
<211> 653
<212> PRT
<213> Homo sapiens

<400> 66
Met Arg Pro Leu Arg Pro Arg Ala Ala Leu Leu Ala Leu Leu Ala Ser
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Leu Leu Ala Ala Pro Pro Val Ala Pro Ala Glu Ala Pro His Leu Val
20 25 30

Gln Val Asp Ala Ala Arg Ala Leu Trp Pro Leu Arg Arg Phe Trp Arg
35 40 45

Ser Thr Gly Phe Cys Pro Pro Leu Pro His Ser Gln Ala Asp Gln Tyr
50 55 60

Val Leu Ser Trp Asp Gln Gln Leu Asn Leu Ala Tyr Val Gly Ala Val
65 70 75 80

Pro His Arg Gly Ile Lys Gln Val Arg Thr His Trp Leu Leu Glu Leu
85 90 95

Val Thr Thr Arg Gly Ser Thr Gly Arg Gly Leu Ser Tyr Asn Phe Thr

	100	105	110
His Leu Asp Gly Tyr Leu Asp Leu Leu Arg Glu Asn Gln Leu Leu Pro	115	120	125
Gly Phe Glu Leu Met Gly Ser Ala Ser Gly His Phe Thr Asp Phe Glu	130	135	140
Asp Lys Gln Gln Val Phe Glu Trp Lys Asp Leu Val Ser Ser Leu Ala	145	150	155
Arg Arg Tyr Ile Gly Arg Tyr Gly Leu Ala His Val Ser Lys Trp Asn	165	170	175
Phe Glu Thr Trp Asn Glu Pro Asp His His Asp Phe Asp Asn Val Ser	180	185	190
Met Thr Met Gln Gly Phe Leu Asn Tyr Tyr Asp Ala Cys Ser Glu Gly	195	200	205
Leu Arg Ala Ala Ser Pro Ala Leu Arg Leu Gly Gly Pro Gly Asp Ser	210	215	220
Phe His Thr Pro Pro Arg Ser Pro Leu Ser Trp Gly Leu Leu Arg His	225	230	235
Cys His Asp Gly Thr Asn Phe Phe Thr Gly Glu Ala Gly Val Arg Leu	245	250	255
Asp Tyr Ile Ser Leu His Arg Lys Gly Ala Arg Ser Ser Ile Ser Ile	260	265	270
Leu Glu Gln Glu Lys Val Val Ala Gln Gln Ile Arg Gln Leu Phe Pro	275	280	285
Lys Phe Ala Asp Thr Pro Ile Tyr Asn Asp Glu Ala Asp Pro Leu Val	290	295	300
Gly Trp Ser Leu Pro Gln Pro Trp Arg Ala Asp Val Thr Tyr Ala Ala	305	310	315
Met Val Val Lys Val Ile Ala Gln His Gln Asn Leu Leu Leu Ala Asn	325	330	335
Thr Thr Ser Ala Phe Pro Tyr Ala Leu Leu Ser Asn Asp Asn Ala Phe	340	345	350
Leu Ser Tyr His Pro His Pro Phe Ala Gln Arg Thr Leu Thr Ala Arg	355	360	365
Phe Gln Val Asn Asn Thr Arg Pro Pro His Val Gln Leu Leu Arg Lys	370	375	380
Pro Val Leu Thr Ala Met Gly Leu Leu Ala Leu Leu Asp Glu Glu Gln	385	390	395
Leu Trp Ala Glu Val Ser Gln Ala Gly Thr Val Leu Asp Ser Asn His	405	410	415
Thr Val Gly Val Leu Ala Ser Ala His Arg Pro Gln Gly Pro Ala Asp	420	425	430

Ala Trp Arg Ala Ala Val Leu Ile Tyr Ala Ser Asp Asp Thr Arg Ala
435 440 445

His Pro Asn Arg Ser Val Ala Val Thr Leu Arg Leu Arg Gly Val Pro
450 455 460

Pro Gly Pro Gly Leu Val Tyr Val Thr Arg Tyr Leu Asp Asn Gly Leu
465 470 475 480

Cys Ser Pro Asp Gly Glu Trp Arg Arg Leu Gly Arg Pro Val Phe Pro
485 490 495

Thr Ala Glu Gln Phe Arg Arg Met Arg Ala Ala Glu Asp Pro Val Ala
500 505 510

Ala Ala Pro Arg Pro Leu Pro Ala Gly Gly Arg Leu Thr Leu Arg Pro
515 520 525

Ala Leu Arg Leu Pro Ser Leu Leu Leu Val His Val Cys Ala Arg Pro
530 535 540

Glu Lys Pro Pro Gly Gln Val Thr Arg Leu Arg Ala Leu Pro Leu Thr
545 550 555 560

Gln Gly Gln Leu Val Leu Val Trp Ser Asp Glu His Val Gly Ser Lys
565 570 575

Cys Leu Trp Thr Tyr Glu Ile Gln Phe Ser Gln Asp Gly Lys Ala Tyr
580 585 590

Thr Pro Val Ser Arg Lys Pro Ser Thr Phe Asn Leu Phe Val Phe Ser
595 600 605

Pro Asp Thr Gly Ala Val Ser Gly Ser Tyr Arg Val Arg Ala Leu Asp
610 615 620

Tyr Trp Ala Arg Pro Gly Pro Phe Ser Asp Pro Val Pro Tyr Leu Glu
625 630 635 640

Val Pro Val Pro Arg Gly Pro Pro Ser Pro Gly Asn Pro
645 650

<210> 67

<211> 1290

<212> DNA

<213> Homo sapiens

<400> 67

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ctcgtttcct gggacatccc tggggctaga gcactggaca atggattggc aaggacgcct
120

accatgggct ggctgcactg ggagcgcttc atgtgcaacc ttgactgcca ggaagagcca
180

gattcctgca tcagtgagaa gctcttcacg gagatggcag agctcatggt ctcagaaggc
240

tggaaggatg cagggttatga gtacctctgc attgatgact gttggatggc tccccaaaga
300

gattcagaag gcagacttca ggcagaccct cagcgcttcc ctcatgggat tgcgcagcta
360

gctaattatg ttcacagcaa aggactgaag ctagggattt atgcagatgt tggaaataaa
420

acctgogcag gcttccctgg gagtttttga tactacgaca ttgatgccca gacctttgct
480

gactggggag tagatctgct aaaatttgat ggttggtact gtgacagttt ggaaaatttg
540

gcagatgggt. ataagcacat gtccttggcc ctgaatagga ctggcagaag catttgttac
600

tcctgtgagt ggctcttcta tatgtggccc ttcaaaaagc ccaattatac agaaatccga
660

cagtactgca atcactggcg aaattttgct gacattgatg attcctggaa aagtataaag
720

agtatcttgg actggacatc ttttaaccag gagagaattg ttgatgttgc tggaccaggg
780

ggttggaatg acccagatat gttagtgatt ggcaactttg gcctcagctg gaatcagcaa
840

gtaactcaga tggccctctg ggctatcatg gctgctcctt tattcatgtc taatgacctc
900

cgacacatca gccctcaagc caaagctctc cttcaggata aggacgtaat tgccatcaat
960

caggacccct tgggcaagca agggtagcag cttagacagg gagacaactt tgaagtgtgg
1020

gaacgacctc tctcaggctt agcctgggct gtagctatga taaaccggca ggagattggt
1080

ggacctcgct cttataccat cgcagttgct tccctgggta aaggagtggc ctgtaatcct
1140

gcctgcttca tcacacagct cctccctgtg aaaaggaagc tagggttcta tgaatggact
1200

tcaagggttaa gaagtcacat aaatcccaca ggcactgttt tgcttcagct agaaaatata
1260

atgcagatgt cattaaaaga cttactttta
1290

<210> 68

<211> 429

<212> PRT

<213> Homo sapiens

<400> 68

Met Gln Leu Arg Asn Pro Glu Leu His Leu Gly Cys Ala Leu Ala Leu

1 5 10 15
 Arg Phe Leu Ala Leu Val Ser Trp Asp Ile Pro Gly Ala Arg Ala Leu
 20 25 30
 Asp Asn Gly Leu Ala Arg Thr Pro Thr Met Gly Trp Leu His Trp Glu
 35 40 45
 Arg Phe Met Cys Asn Leu Asp Cys Gln Glu Glu Pro Asp Ser Cys Ile
 50 55 60
 Ser Glu Lys Leu Phe Met Glu Met Ala Glu Leu Met Val Ser Glu Gly
 65 70 75 80
 Trp Lys Asp Ala Gly Tyr Glu Tyr Leu Cys Ile Asp Asp Cys Trp Met
 85 90 95
 Ala Pro Gln Arg Asp Ser Glu Gly Arg Leu Gln Ala Asp Pro Gln Arg
 100 105 110
 Phe Pro His Gly Ile Arg Gln Leu Ala Asn Tyr Val His Ser Lys Gly
 115 120 125
 Leu Lys Leu Gly Ile Tyr Ala Asp Val Gly Asn Lys Thr Cys Ala Gly
 130 135 140
 Phe Pro Gly Ser Phe Gly Tyr Tyr Asp Ile Asp Ala Gln Thr Phe Ala
 145 150 155 160
 Asp Trp Gly Val Asp Leu Leu Lys Phe Asp Gly Cys Tyr Cys Asp Ser
 165 170 175
 Leu Glu Asn Leu Ala Asp Gly Tyr Lys His Met Ser Leu Ala Leu Asn
 180 185 190
 Arg Thr Gly Arg Ser Ile Val Tyr Ser Cys Glu Trp Pro Leu Tyr Met
 195 200 205
 Trp Pro Phe Gln Lys Pro Asn Tyr Thr Glu Ile Arg Gln Tyr Cys Asn
 210 215 220
 His Trp Arg Asn Phe Ala Asp Ile Asp Asp Ser Trp Lys Ser Ile Lys
 225 230 235 240
 Ser Ile Leu Asp Trp Thr Ser Phe Asn Gln Glu Arg Ile Val Asp Val
 245 250 255
 Ala Gly Pro Gly Gly Trp Asn Asp Pro Asp Met Leu Val Ile Gly Asn
 260 265 270
 Phe Gly Leu Ser Trp Asn Gln Gln Val Thr Gln Met Ala Leu Trp Ala
 275 280 285
 Ile Met Ala Ala Pro Leu Phe Met Ser Asn Asp Leu Arg His Ile Ser
 290 295 300
 Pro Gln Ala Lys Ala Leu Leu Gln Asp Lys Asp Val Ile Ala Ile Asn
 305 310 315 320
 Gln Asp Pro Leu Gly Lys Gln Gly Tyr Gln Leu Arg Gln Gly Asp Asn
 325 330 335

Phe Glu Val Trp Glu Arg Pro Leu Ser Gly Leu Ala Trp Ala Val Ala
340 345 350

Met Ile Asn Arg Gln Glu Ile Gly Gly Pro Arg Ser Tyr Thr Ile Ala
355 360 365

Val Ala Ser Leu Gly Lys Gly Val Ala Cys Asn Pro Ala Cys Phe Ile
370 375 380

Thr Gln Leu Leu Pro Val Lys Arg Lys Leu Gly Phe Tyr Glu Trp Thr
385 390 395 400

Ser Arg Leu Arg Ser His Ile Asn Pro Thr Gly Thr Val Leu Leu Gln
405 410 415

Leu Glu Asn Thr Met Gln Met Ser Leu Lys Asp Leu Leu
420 425

<210> 69

<211> 351

<212> DNA

<213> Homo sapiens

<400> 69

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gtttctccatt ccgctcctga tgtgcaggat tgcccagaat gcacgctaca ggaaaaccca
120

ttttctctcc agccgggtgc cccaatactt cagtgcattg gctgctgctt ctctagagca
180

tatcccactc cactaagggtc caagaagacg atgttgggtcc aaaagaacgt cacctcagag
240

tccacttgct gtgtagctaa atcatataac agggtcacag taatggggggg tttcaaagtg
300

gagaaccaca cggcgtgccca ctgcagtact tgttattatc acaaattctta a
351

<210> 70

<211> 116

<212> PRT

<213> Homo sapiens

<400> 70

Met Asp Tyr Tyr Arg Lys Tyr Ala Ala Ile Phe Leu Val Thr Leu Ser
1 5 10 15

Val Phe Leu His Val Leu His Ser Ala Pro Asp Val Gln Asp Cys Pro
20 25 30

Glu Cys Thr Leu Gln Glu Asn Pro Phe Phe Ser Gln Pro Gly Ala Pro
35 40 45

Ile Leu Gln Cys Met Gly Cys Cys Phe Ser Arg Ala Tyr Pro Thr Pro
50 55 60

Leu Arg Ser Lys Lys Thr Met Leu Val Gln Lys Asn Val Thr Ser Glu
65 70 75 80

Ser Thr Cys Cys Val Ala Lys Ser Tyr Asn Arg Val Thr Val Met Gly
85 90 95

Gly Phe Lys Val Glu Asn His Thr Ala Cys His Cys Ser Thr Cys Tyr
100 105 110

Tyr His Lys Ser
115

<210> 71

<211> 498

<212> DNA

<213> Homo sapiens

<400> 71

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60

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120

gagggctgcc ccgtgtgcat caccgtcaac accaccatct gtgcgggcta ctgccccacc
180

atgaccgcg tgctgcagg ggtcctgccg gccctgcctc aggtgggtgtg caactaccgc
240

gatgtgcgt tgcagtcac ccggctccct ggctgcccgc gcggcgtgaa ccccgtagtc
300

tcctacgccg tggtctcag ctgtcaatgt gcaactctgcc gccgcagcac cactgactgc
360

gggggtccca aggaccaccc cttagacctgt gatgaccccc gcttccagga ctctcttcc
420

tcaaaggccc ctccccccag ccttccaagc ccatcccgc tcccggggcc ctcgacacc
480

ccgatacctcc cacaataa
498

<210> 72

<211> 165

<212> PRT

<213> Homo sapiens

<400> 72

Met Glu Met Phe Gln Gly Leu Leu Leu Leu Leu Leu Ser Met Gly
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Gly Thr Trp Ala Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile
20 25 30

Asn Ala Thr Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr
35 40 45

Val Asn Thr Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val

50

55

60

Leu Gln Gly Val Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg
65 70 75 80

Asp Val Arg Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val
85 90 95

Asn Pro Val Val Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu
100 105 110

Cys Arg Arg Ser Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu
115 120 125

Thr Cys Asp Asp Pro Arg Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro
130 135 140

Pro Pro Ser Leu Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr
145 150 155 160

Pro Ile Leu Pro Gln
165

<210> 73

<211> 165

<212> PRT

<213> Homo sapiens

<400> 73

Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu
1 5 10 15

Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His
20 25 30

Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe
35 40 45

Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp
50 55 60

Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu
65 70 75 80

Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp
85 90 95

Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu
100 105 110

Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala
115 120 125

Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val
130 135 140

Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala
145 150 155 160

Cys Arg Thr Gly Asp
165

<210> 74
 <211> 588
 <212> DNA
 <213> Homo sapiens

<400> 74
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 tctctgggct gtgatctgcc tcagaacctt ggcctactta gcaggaacac cttgggtgctt
 120
 ctgcacaaa tgaggagaat ctcccctttc ttgtgtctca aggacagaag agacttcagg
 180
 ttccccagc agatggtaaa agggagccag ttgcagaagg cccatgtcat gtctgtcctc
 240
 catgagatgc tgcagcagat cttcagcctc ttccacacag agcgctcctc tgctgcctgg
 300
 aacatgaccc tcctagacca actccacact ggacttcac agcaactgca acacctggag
 360
 acctgcttgc tgcaggtagt gggagaagga gaatctgctg gggcaattag cagccctgca
 420
 ctgaccttga ggaggtactt ccagggaatc cgtgtctacc tgaaagagaa gaaatacagc
 480
 gactgtgcct gggaagttgt cagaatggaa atcatgaaat ccttggttctt atcaacaaac
 540
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 588

<210> 75
 <211> 195
 <212> PRT
 <213> Homo sapiens

<400> 75
 Met Ala Leu Leu Phe Pro Leu Leu Ala Ala Leu Val Met Thr Ser Tyr
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 20 25 30
 Leu Ser Arg Asn Thr Leu Val Leu Leu His Gln Met Arg Arg Ile Ser
 35 40 45
 Pro Phe Leu Cys Leu Lys Asp Arg Arg Asp Phe Arg Phe Pro Gln Glu
 50 55 60
 Met Val Lys Gly Ser Gln Leu Gln Lys Ala His Val Met Ser Val Leu
 65 70 75 80
 His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser
 85 90 95

Ser Ala Ala Trp Asn Met Thr Leu Leu Asp Gln Leu His Thr Gly Leu
 100 105 110
 His Gln Gln Leu Gln His Leu Glu Thr Cys Leu Leu Gln Val Val Gly
 115 120 125
 Glu Gly Glu Ser Ala Gly Ala Ile Ser Ser Pro Ala Leu Thr Leu Arg
 130 135 140
 Arg Tyr Phe Gln Gly Ile Arg Val Tyr Leu Lys Glu Lys Lys Tyr Ser
 145 150 155 160
 Asp Cys Ala Trp Glu Val Val Arg Met Glu Ile Met Lys Ser Leu Phe
 165 170 175
 Leu Ser Thr Asn Met Gln Glu Arg Leu Arg Ser Lys Asp Arg Asp Leu
 180 185 190
 Gly Ser Ser
 195

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